EPA UIC

PERMIT APPLICATION

SUBMITTED BY:

ELK HILLS POWER, LLC

TUPMAN, CALIFORNIA

PREPARED BY: MHA PETROLEUM CONSULTANTS

SEPTEMBER 15, 2010

Elk Hills Power

2010
UIC permit application
Supplemental data
November 23, 2010

Technical Review file

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

March 2, 2011

George McMurren III
Plant Manager
Elk Hills Power, LLC
4026 Skyline Road
Tupman, California 93276

RE: UIC Permit Application - Permit #R9UIC-CA1-FY10-1R
Technical Review

Dear Mr. McMurren,

I am the Project Officer reviewing the referenced Elk Hills Power Application for a new 10 year permit to inject. Thus far, the following bulleted items are the issues that need to be addressed during this Technical Review period.

(1) • The application is mostly a re-submission of the original application, which is not sufficient. While much of the original application material is still valid, there are materials that were provided to supplement the original application during our last Technical Review that are not provided in the current application. In addition, since you have now been operating injection wells for almost 10 years, this application should address the historical performance of the combined wells; the net influence of the combined wells' injection upon the injection formation; the geological facts/data gathered from drilling, logging, testing and monitoring; and the plugged and abandoned Well 25-18G. These well and field specific details were not available during the last Technical Review, but should now be incorporated into your application to predict performance over the next 10-year permit duration.

(2) • The Area of Review (AOR) calculations and discussion needs to be updated. A waste front now exists and needs engineering discussion and geological treatment - all updated and modeled to reflect the application for a new 10 year permit.

(3) • The reservoir engineering is not up to date. Beginning and present pressures are not discussed sufficiently. Discuss the Hall Plot - for each well - is it possible for all wells combined? A renewal permit will continue to require submittal of Hall Plots. Please provide how analysis will be presented, with parameters justified, explained. Please submit a comparison and discussion of Historical Falloff Tests (FOTs). Update pressure front calculations and perform projections for the next 10 years using conservative values similar to what was done for the original Technical Review period.

(4) • The geological cross sections need to include the permitted wells and data obtained from them; the regional cross sections need to show where the Elk Hills wells are located.

(5) • Region 9 policy is that Maximum Surface Injection Pressure (MSIP) is to be set at 80% of corresponding FPP at BHP conditions. Please provide a discussion of the original Step

Rate test (SRT) performance and provide justification that the current injection limit (set at 90% of FPP) is sufficiently protective. Additionally, in that justification, please address whether the historical injection pressures show that an MSIP set at 80% will negatively affect injection well performance. Indications are that this is not so. Further, if injection pressures approach the MSIP, the well(s) need treatment for reservoir damage and/or fill interference in the hole. It is especially important to maintain operating pressures at these wells below FPP, given the geological conditions present. Specifically, since the confining zone is a soft clay and is considered to be impermeable, it may not have sufficient strength to contain the stress of exceedance of fracture pressure.

(6) • Were water samples captured and analyzed from the injection formation to provide information about its characteristics? Please provide these and compare them to salinity calculations from the open hole logs.

(7) • Please be mindful that additional material provided during this Technical Review serves to modify your original application document. This process continues to modify the original application submission until the end of the Technical Review, when EPA makes a permitting decision. Please provide along with hard copies of the requested material, an updated electronic copy of the modified, updated application.

(8) • Is Denis Champion still the legal contact? Is the legal address the same too?

In addition to my mail address I can be contacted via email at robin.george@epa.gov and/or by phone at (415) 972-3532 if you have any questions or wish to discuss this further. My manager, David Albright can also be contacted at (415) 972-3971.

Sincerely,

George Robin
Engineer, Ground Water Office

Cc: Randy Adams, DOGGR District 4
Dale Harvey, Fresno RWQCB

Elk Hills Power

September 15, 2010

Mr. George Robin
U.S. Environmental Protection Agency
Ground Water Office (WTR-9)
75 Hawthorne Street
San Francisco, CA 94105

Subject: Elk Hills Power, LLC - UIC Permit Application
UIC Permit No. CA200002

Dear Mr. Robin:

Please find two copies of Elk Hills Power, LLC permit application for the injection well 25A-18G, 35A-18G and 35-18G.

Should you have any questions, please feel free to contact me at (661) 763-2727 or Mr. Sonnie Pineda at (661) 763-2725.

Sincerely,

George McMurren III
Plant Manager

Attachments:
UIC permit Application (2 copies)

Cc:
K. Gillespie, Sempra Generation – ecopy
J. Matranga, OEVC – ecopy
M. Teague, Sempra Global – ecopy
T. Miller, Sempra - ecopy
EHP File – 01Annual \UIC\2010

Elk Hills Power

November 22, 2010

United States Environmental Protection Agency
Mr. David Albright
Manager, Ground Water Office
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

RE: UIC Permit Application (Permit #R9UIC-CA1-FY10-1R)
Administrative Review

Dear Mr. Albright:

Elk Hills Power (EHP) received your letter to Mr. George McMurren (Plant Manager) dated November 3, 2010 on November 17, 2010 regarding the subject application and requirements of 40 CFR Part 144.4 "Considerations under Federal Law". The following provides the requested information about consultation performed by the EPA to meet the applicable Federal regulations for the renewal of our existing Class I Underground Injection Control (UIC) permit:

(a) The Wild and Scenic Rivers Act [16 U.S.C. 1273]
The conditions for this UIC permit application do not require consideration of the regulations associated with The Wild and Scenic Rivers Act.

(b) The National Historic Preservation Act of 1966 [16 U.S.C. 470]
Pursuant to requirements of 36 CFR Part 800 regarding the National Historic Preservation Act (NHPA), and prior to issuance of the original UIC permit in February 2001, the EPA consulted with the State of California's Office of Historic Preservation (OHP) regarding potential impact to historic properties during the development of Elk Hills Power Plant (EHPP).

EPA reviewed and evaluated cultural resource field surveys and extensive literature reviews of the area of the EHPP conducted by the California Energy Commission and Foster Wheeler Environmental Corporation. In a letter to the OHP dated December 4, 2000, EPA summarized the results of the investigations and concluded that "no further actions are required for EPA to satisfy its obligations under the NHPA with regard to the issuance of the UIC permit" (**Attachment 1**).

P.O. Box 460 ▪ 4026 Skyline Road ▪ Tupman, CA 93276
Phone (661) 763-2730 ▪ FAX (661) 765-2946

In its issuance of the original UIC permit (February 2001), the EPA stated that "EPA has satisfied its responsibilities under the NHPA at this time and may issue the final UIC permit" (Response No. 16, "Response To Comments", Underground Injection Control Program, Class I Nonhazardous Waste Injection Draft Permit No. CA2000002, February 16, 2001 – **Attachment 2**). Since the subject UIC permit application proposes neither surface nor subsurface development, no new potential impact to historic property exists and, we believe that no further consultation between the EPA and OHP is needed to meet the requirements of 36 CFR Part 800 for Protection of Historic Properties.

(c) The Endangered Species Act [16 U.S.C. 1531]

Pursuant to requirements of 50 CFR Part 402 regarding the Endangered Species Act (ESA), and prior to issuance of the original UIC permit in February 2001, the EPA consulted with the United States Bureau of Land Management (BLM; designated as lead agency) and the Department of the Interior Fish and Wildlife Service (FWS) regarding the development and maintenance of the EHPP and the potential impact it may have with regard to biological resources in the area addressed by the ESA.

As part of the permitting process underway in 2000, EHP developed, and has subsequently followed, protocols for surveying and reporting biological resources at EHPP. These protocols are given in the "Biological Resources Mitigation and Implementation Monitoring Plan" (drafted October 2, 2000; finalized May 15, 2001 – **Attachment 3).**

The FWS issued a Biological Opinion on January 17, 2001 regarding the EHPP (United States Department of the Interior, Fish and Wildlife Service, Memorandum, "Formal Section 7 Consultation on the Elk Hills Power Project, Kern County, California" – **Attachment 4**).

When issuing the original UIC permit, EPA stated that it had "reviewed the biological opinion and determined that issuance of the final UIC permit is consistent with the requirements of the Endangered Species Act" (Response No. 15, "Response To Comments", Underground Injection Control Program, Class I Nonhazardous Waste Injection Draft Permit No. CA2000002, February 16, 2001 - **Attachment 2**).

In consideration of the ongoing monitoring and reporting of biological resources for the EHPP with regard to the Endangered Species Act, we believe that no further consultation between the EPA and FWS and BLM is needed to meet the requirements of 40 CFR Part 144.4 with regard to the ESA.

(d) The Coastal Zone Management Act [16 U.S.C. 1451]
The conditions for this UIC permit application do not require consideration of the regulations associated with Coastal Zone Management Act.

(e) The Fish and Wildlife Coordination Act [16 U.S.C. 661]
The conditions for this UIC permit application do not require consideration of the regulations associated with the Fish and Wildlife Coordination Act.

In addition to providing two (2) hard copies and a CD of this document for EPA files, EHP has also updated the electronic copy of the UIC permit application, which is available to the EPA by downloading the document from the EHP FTP site under the folder named Permit Application 2010.

ftp://ftp.elkhills.com
Username: ehpuic
Password: ehpuic

Please feel free to contact us if you need any additional information.

Very truly yours,

George McMurren III
Plant Manager

Encl: Attachment1_EPA to CA Office of Historic Preservation_4Dec2000.pdf
Attachment2_EPA to EHPP_Permit Granted w comments_21Feb2001.pdf
Attachment3_Bio Resources Mit & Implement Monitoring Plan_QuadKnopf_15May2001.pdf
Attachment4_Fish&Wildlife to BLM_Biological Opinion_17Jan2001.pdf

cc: Mr. George Robin, US EPA, Region IX

Elk Hills Power

2010
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November 23, 2010

ATTACHMENT 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

EPA FRS ID No. 110012191430

DEC 0 4 2000

Daniel Abeyta
Acting State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

Attn: Chuck Whatford

RE: National Historic Preservation Act Section 106 Consultation on Elk Hills Power Project

Dear Mr. Abeyta:

This is in follow-up to recent discussions between Chuck Whatfor of your office and Karen Peterson and George Robin of this office. We are writing to initiate consultation under section 106 of the National Historic Preservation Act (NHPA) on a portion of the Elk Hills Power Project (EHPP) in Kern County, California. The Elk Hills Power Project consists of a 500-megawatt natural gas-fired combined cycle power plant and associated linear facilities, including a natural gas pipeline, transmission lines, a water supply pipeline, and a wastewater disposal pipeline. The United States Environmental Protection Agency (EPA) intends to issue a Safe Drinking Water Act Underground Injection Control (UIC) permit to Elk Hills Power, LLC (Elk Hills) for the discharge of wastewater from the power plant into two underground injection wells. The wastewater disposal pipeline originates at the power plant and travels 4.4 miles, terminating at the injection wells. The issuance of the UIC permit represents an "undertaking" as defined by 36 C.F.R. section 800.16(y), which states that undertakings include projects "requiring a Federal permit, license or approval."

This letter and the enclosed documents summarize the extensive literature reviews and cultural resource field surveys conducted in the area of the Elk Hills Power Project during the past several years. The enclosures include: (1) "Cultural Resources" section of Final Staff Assessment (California Energy Commission, January 2000); (2) "Cultural Resources" section of Application for Certification for Elk Hills Power Project, Kern County, California (Foster Wheeler Environmental Corporation, February 1999); and (3) "Appendix L" of Application for Certification for Elk Hills Power Project, Kern County, California (Foster Wheeler Environmental Corporation, February 1999). Section L-2 of Appendix L consists of a confidential Cultural Resources Inventory prepared by Foster Wheeler Environmental Corporation on behalf of Elk Hills and is not included in EPA's version of the Application for Certification. Due to the confidential nature of the Cultural Resources Inventory, EPA directed Elk Hills to send the document under separate cover directly to the Office of Historic Preservation for your review.

EPA has reviewed and evaluated these documents pursuant to our obligations under the NHPA. The remainder of this letter provides a brief summary of the cultural resources investigations performed in the area of the Elk Hills Power Project, and an attachment to the letter describes the ongoing consultations with Native Americans in the area of the EHPP.

Cultural Resources Analysis by the California Energy Commission

The California Energy Commission (CEC) has jurisdiction over the Elk Hills Power Project and must certify the EHPP prior to construction or operation. The CEC reviews projects licensed by the CEC to ensure compliance with federal, state, and local laws and regulations, including the NHPA. As part of the CEC's oversight responsibilities, the CEC staff prepared a Final Staff Assessment, dated January 2000, to evaluate Elk Hills' Application for Certification for the Elk Hills Power Project. The Final Staff Assessment includes the CEC staff's cultural resources analysis, which is designed to: (1) ensure that all historic properties are recognized; (2) identify potential impacts to significant sites; and (3) set forth conditions to prevent any significant adverse impacts to cultural resources. Both the Siting Regulations of the California Energy Commission and the California Environmental Quality Act require the CEC staff to determine potential impacts to cultural resources from the EHPP.

The Final Staff Assessment evaluates the potential impacts to cultural resources for the entire Elk Hills Power Project, including the power plant, natural gas pipeline, transmission lines, water supply pipeline, and wastewater disposal pipeline. In the cultural resource analysis of the Application for Certification, Elk Hills defines the Area of Potential Effect (APE) as encompassing an area 0.25 miles around the power plant site; 100 feet on either side of the transmission lines; and 50 feet on either side of the natural gas, water supply, and wastewater disposal pipelines. Because the federal "undertaking" in this case consists only of the issuance of a UIC permit for the underground injection wells, EPA asks that the Office of Historic Preservation limit the scope of this consultation to the 4.4-mile wastewater disposal pipeline and associated injection wells.

In December 1998, Elk Hills conducted a literature search and reviewed site records and maps for the project APE at the San Joaquin Valley Information Center of the California Historical Resources Information System. In addition, Elk Hills reviewed lists of historic properties included within the National Register of Historic Places, California Register of Historical Resources, California Points of Historic Interest, California Landmark files, and historic maps. The archival record search indicated that roughly 36 percent of the project APE had been previously surveyed; and in 1998-1999 Elk Hills conducted a cultural resource field survey of portions of the project APE to determine the current status and condition of selected previously recorded resources and to examine areas that had not been previously surveyed. With respect to the wastewater disposal pipeline, Elk Hills surveyed approximately two miles at the northern end of the pipeline (i.e., 26 acres) that had not been previously surveyed. Elk Hills did not record any archaeological sites either in the APE or the 0.25-mile buffer zone surrounding the wastewater disposal pipeline. In addition, archival research and previous surveys of the wastewater disposal pipeline APE did not identify any archaeological sites.

The Final Staff Assessment states: "Since project development and construction usually entail surface and subsurface disturbance of the ground, the proposed Elk Hills project has the potential to cause an adverse effect on both known and previously unknown cultural resources." Final Staff Assessment, p. 231. The 6-inch steel wastewater disposal pipeline will be carried aboveground on pipe supports, except where it crosses under Elk Hills Road and Skyline Road in a pipe chase, to two underground injection wells four miles south of the power plant. In other words, construction of the wastewater disposal pipeline and injection wells will involve relatively limited subsurface disturbance of the ground. Because no cultural resources have been identified within the wastewater disposal pipeline APE or 0.25-mile buffer zone, the Final Staff Assessment concludes that no impacts are anticipated along the wastewater disposal pipeline unless presently unknown cultural resources are encountered.

Moreover, the Final Staff Assessment proposes conditions of certification to ensure mitigation of potential impacts to known and unknown cultural resources during construction of the Elk Hills Power Project. By properly implementing the mitigation measures, Elk Hills can mitigate impacts to both undetermined and identified sites to a less than significant level and remain in compliance with all applicable laws and regulations. The Final Staff Assessment stipulates that the preferred mitigation for impacts to cultural resources is avoidance of the resource. If previously unknown cultural resources are encountered during site clearance or project construction, and they cannot be avoided, then Elk Hills must undertake contingency measures to protect these resources and ameliorate the impacts to a less than significant level. The proposed mitigation measures include the designation of a qualified professional cultural resources specialist and a qualified Native American Observer to monitor site clearing and project construction activities, as well as the preparation of a Cultural Resources Monitoring and Mitigation Plan.

Based on the comprehensive cultural resources investigations described in the enclosed documents, EPA respectfully requests that the Office of Historic Preservation concur in EPA's conclusion that no further actions are required for EPA to satisfy its obligations under the NHPA with regard to the issuance of the UIC permit. Thank you for your prompt consideration of this letter and the enclosed documents. If you have any questions about the enclosed information, please contact Karen Peterson at (415) 744-1334 or George Robin at (415) 744-1819.

Sincerely,

Laura Tom Bose

Laura Tom Bose, Manager
Ground Water Office, WTR-9

Enclosures

cc: Dennis Champion, Elk Hills Power, LLC

ATTACHMENT

Consultation With Native Americans

In 1998 the Department of Energy (DOE) sold the Elk Hills Oil and Gas Field (NPR-1), which includes the proposed EHPP, to Occidental of Elk Hills, Inc. (Occidental). As part of the divestiture process, DOE developed a Cultural Resource Management Plan, which was approved by the State Historic Preservation Officer in a Programmatic Agreement. The Cultural Resource Management Plan and Programmatic Agreement are designed to assist DOE in complying with the NHPA, the Native American Graves Protection and Repatriation Act, and other legal requirements related to historic preservation. The Programmatic Agreement requires DOE to consult with Native American tribes and individuals throughout implementation of the Cultural Resources Management Plan. In addition, DOE has an ongoing program for Native American consultation regarding sites listed or eligible for listing on the National Register of Historic Places. Occidental has a continuing consultation program with interested Native Americans regarding future development programs and preservation of recorded or discovered sites at NPR-1.

Although EPA has not been involved in prior consultations with Native American tribes regarding the area to be occupied by the EHPP, tribes have been provided with an ongoing opportunity to provide input regarding the cultural resources within NPR-1 as a whole. EPA believes that this broad opportunity to consult regarding cultural resources within the area of the Elk Hills Power Project satisfies EPA's obligation "to consult with any Indian tribe or Native Hawaiian organization that attaches religious or cultural significance to historic properties that may be affected by an undertaking." See 40 C.F.R. § 800.2(c)(3).

Specifically, the regulations require EPA to:

> ensure that consultation in the section 106 process provides the Indian tribe or native Hawaiian organization a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects.

40 C.F.R. § 800.2(c)(3)(i). Through the consultation procedures implemented by DOE and Occidental, Native American tribes that attach religious or cultural significance to historic properties at NPR-1 have had a reasonable opportunity to identify their concerns, advise on the identification and evaluation of historic properties, and participate in the resolution of adverse effects. In particular, in November 1998, Occidental sent a notification letter regarding the proposed Elk Hills Power Project to Native American tribes who had expressed interest in cultural resources in the vicinity of the EHPP. In addition, at a January 16, 1999 meeting, Occidental presented the conceptual location of the EHPP to the Kern County Native American Preservation Council and the Elk Hills Coalition. EPA's "undertaking" in this case involves the issuance of a UIC permit for two underground injection wells as part of the EHPP. Thus, Native Americans had an opportunity to consult regarding cultural resources that may be affected by the undertaking (i.e., on land encompassed by NPR-1).

ATTACHMENT 2

The UIC permit is issued upon the date of signature on the permit and shall become effective 30 days thereafter, unless there is an appeal of this final permit decision to the Environmental Appeals Board. Pursuant to 40 C.F.R. § 124.19, an appeal must be taken within 30 days of the service of notice of EPA's action (i.e., the date of this letter). Furthermore, a petition for review must state the reasons supporting review, including a showing that the challenged permit condition is based on: (1) a finding of fact or conclusion of law which is clearly erroneous; or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review. 40 C.F.R. § 124.19.

If you have any questions, please contact George Robin of my staff at (415) 744-1819.

Sincerely,

Laura Tom Bose

Laura Tom Bose
Manager, Groundwater Office

Enclosures

EPA Region IX
Underground Injection Control Program
Class I Nonhazardous Waste Injection Draft Permit No. CA200002

Response To Comments

February 16, 2001

Comment No. 1:
The commenter suggested that not all of the technical information about the well site is known prior to the drilling the of actual well and without this information, the issuance of the permit is premature.
Response No. 1:
The U.S. Environmental Protection Agency (EPA) believes that sufficient information is available to make an informed permit determination. EPA has considered and addressed all concerns raised by 40 CFR § 146.14, both through the permitting process and through the draft permit conditions, in order to protect Underground Sources of Drinking Water (USDWs). Furthermore, the draft permit provides that EPA will not authorize injection (i.e., approval to operate the wells will not be granted) until all stipulated conditions have been met.

Comment No. 2:
The commenter believes it is necessary to determine the presence of USDWs within the Area of Review before the permit is issued. It is suggested that the Elk Hills Power Project (EHPP) drill seven wells to obtain an accurate assessment of the hydrogeology before a final permit is issued.
Response No. 2:
EPA concludes that for this case, requiring the drilling of peripheral wells to be neither prudent, nor protective for a number of reasons. First, the drilling and construction of additional wells near the proposed injection wells would introduce concern because of their close proximity to the injection operations. Peripheral wells introduce additional pathways for possible migration of fluids that are intended to be contained within the Tulare formation, the proposed injection zone. Second, while the construction of these wells would introduce concern regarding their operational usage and eventual closure, they would not the serve the intent of the permit, which is to prevent contamination from occurring at the point of the injection or within existing wells within the Area of Review. Third, the exact characterization of the possible USDW overlying the injection zone is not necessary in order to provide its protection. The draft UIC permit provides numerous and complementary protective measures to prevent the contamination of USDWs, whether or not USDWs exist within the area. Fourth, the use of well diagnostic technology, combined with operating, monitoring and testing practices allows for advance detection of possible contaminating situations and resulting remedial action(s) at the location of

the injection well.

Comment No. 3:
The commenter believes that EPA proposes to alter or modify important permitted well construction requirements after the close of public comment in violation of 40 CFR Part 124.
Response No. 3:
EPA may make minor modifications to permits under 40 CFR §144.41(f) to change construction requirements approved by the EPA Region 9 Director (Director) pursuant to 40 CFR §144.52(a)(1). Major modifications must be processed under the procedures of 40 CFR Part 124 and therefore must be public noticed.

Nonetheless, EPA acknowledges that draft permit condition "II.C.1.a.ii." may be read out of the intended context of minor modification to construction requirements as stipulated in conditions "II.A.3. Injection Intervals" and "II.A.5. Proposed Changes and Workovers." To address this concern, EPA has amended the draft permit condition II.C.a.(ii) to read "The Director may require minor modifications to the construction requirements based upon the information obtained during well drilling and related operations should the proposed casing setting depths not completely cover the base of the USDW." See enclosed copy of the draft permit.

Comment No. 4:
The commenter expressed the concern that the Tulare formation, which is the proposed injection zone, is not an exempt aquifer outside the boundaries of the Elk Hills oilfield and is therefore an USDW. It would be contaminated by off-site migration of injected fluids.
Response No. 4:
The Tulare formation is not an USDW outside of the boundaries of the Elk Hills field at this location because it is an exempted aquifer in the Buena Vista Front area of the Buena Vista oilfield, which directly adjoins the Elk Hills oilfield to the south. In addition, numerous calculations using a variety of waste plume geometries and formation characteristics have demonstrated that even under significantly less favorable conditions, the waste front will not migrate off-site.

Comment No. 5:
There is no discussion on compatibility of injectate with injection zone. The permittee should provide engineering estimates of expected chemical analysis of injectate and should consider concentration levels as compared to drinking water standards.
Response No. 5:
Compatibility of fluids is not expected to become a problem in this case because examination of waste streams from similar operations with similar permitted and geologic settings has shown no

problems associated with fluid compatibility. Compatibility of the Tulare formation fluid with the injectate is of concern to EPA because of the resulting high pressures that may be experienced from the plugging of the available pore space for fluid flow within the Tulare. The increase of injection pressures could cause fluids to migrate into USDWs through channels within the borehole or through hydraulic fracturing of the Tulare formation and the overlying confining layer. However, the permit conditions contain numerous and complementary protective measures, which include limiting the maximum allowable injection pressure to a value sufficiently below the pressure required to fracture the Tulare, periodic testing for leaks in the protective layers of casing, and periodically establishing that vertical fluid migration within or near the borehole does not exist. Therefore, the burden of preventing plugging of the Tulare formation's pore spaces is an ongoing operational issue for EHPP in order to avoid the injection pressure from approaching or exceeding the maximum allowable pressure.

Comment No. 6:
The commenter believes two USDWs will be potentially affected by the injection operation, in violation of 40 CFR § 144.12.

Response No. 6:
After review of the existing records, EPA has made the determination that the Tulare formation within the Area of Review is an exempted aquifer. As such, the prohibitions of 40 CFR §144.12(a) do not apply to the Tulare formation within the Area of Review. Furthermore, injection will be confined to the intended injection zone and no USDWs will be impacted by the permitted underground injection activities.

Comment No. 7:
The permittee should provide engineering estimates of expected chemical analysis of injectate and should consider concentration levels as compared to drinking water standards.

Response No. 7:
As discussed in Response No. 4, the Tulare formation is an exempted aquifer and is therefore not protected as an USDW. As a result, drinking water standards are not applicable. Therefore, a comparison of fluid analyses results (which are used to chemically characterize the waste stream) and drinking water standards is not appropriate in this case.

Comment No. 8:
No monitoring plans for analysis of injectate are included in the permit.

Response No. 8:
EPA agrees with this comment and has revised the permit Part II.D.1.(c) accordingly to require quarterly monitoring of injection fluids.

Comment No. 9:
The commenter asserted that one well within the Area of Review requires corrective action because it was not properly plugged and abandoned, it penetrates the injection zone and that its location is within the area of influence. Therefore, it is possible that injection fluids will migrate into a USDW at the location of this well.

Response No. 9:
Calculations conclusively show that the proposed injection into the Tulare formation will not cause fluid to rise to a level that will endanger USDWs at the location of the well in question. Therefore, corrective action is not necessary for this well.

Comment No. 10:
The commenter believes that an incorrect Area of Review was selected for the permit and that other States and Regions routinely use fixed radii of up to 2.5 miles.

Response No. 10:
EPA believes that the commenter mistakenly used Area of Review dimensions for Class I hazardous waste wells. The regulations at 40 CFR § 146.63 require that the Area of Review for Class I Hazardous waste injection must be a radius of no less than 2 miles. The UIC permit application is for two Class I Nonhazardous wells. The regulations at 40 CFR § 146.6 provide that the Area of Review may be determined by (a) calculation of the zone of endangering influence or (b) using a fixed radius, provided that a fixed radius of no less than 0.25 miles may be used.

Comment No. 11:
The EHPP did not use the Theis Equation, a mathematical model as required in 40 CFR §146.6(a)(2). Therefore the "area of influence" was not calculated correctly.

Response No. 11:
The Theis Equation is only one form of mathematical model which may be used as suggested in the regulations. The Warner & Lehr Equation used in the permit application is an acceptable model which uses parameters suggested in 40 CFR §146.6(a)(2).

Comment No. 12:
The draft permit reports the location of the wells in "Section 18, T.31 S., R.24 E, in Kern County, California." The draft permit should be revised to specify the latitude and longitude of the proposed wells.

Response No. 12:
EPA agrees with this comment and has revised the permit Part I accordingly.

Comment No. 13:
Potentially active faults exist along the southern flank of the Elk Hills located about 1,200 to 2,100 feet north of the proposed injection wells and crossing the proposed supply pipeline route.
Response No. 13:
EPA examined aerial photography and geologic literature and conducted a field reconnaissance to evaluate the possible presence of potentially active faults. Based on its investigations, EPA concluded that there was no evidence of faulting within the area.

Comment No. 14:
The commenter expressed concern regarding the ability of the Tulare clay to act as a positive barrier to wastewater migration.
Response No. 14:
Satisfactory evidence such as well logs and drilling records exists that the Tulare clay acts as a barrier to ground water flow and that it will act as a barrier to contain the injection fluids within the Tulare formation.

Comment No. 15:
EPA must comply with the requirements of section 7 of the Endangered Species Act ("ESA") because EPA's approval of the UIC permit application may affect species listed under the ESA as threatened or endangered.
Response No. 15:
Pursuant to section 7 of the Endangered Species Act, 16 U.S.C. § 1536, and its implementing regulations at 50 CFR Part 402, EPA is required to ensure that any action authorized, funded, or carried out by EPA is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of such species' designated critical habitat. EPA has determined that its UIC permitting action triggers its ESA section 7 obligations. EPA is therefore required to consult with the United States Fish and Wildlife Service ("FWS") and/or the National Marine Fisheries Service ("NMFS") if endangered species or threatened species may be present in the area affected by the UIC permit and EPA's action (i.e., permit issuance) may affect such species. EPA is also required to confer with FWS and/or NMFS on any action that is likely to jeopardize the continued existence of any species proposed for listing as endangered or threatened or result in the destruction or adverse modification of critical habitat proposed to be designated for such species.

When a federal action involves more than one federal agency, consultation and conference responsibilities under section 7 of the ESA may be fulfilled through a lead agency pursuant to 50 CFR § 402.07. The federal agencies involved with the Elk Hills Power Project designated the Bureau of Land Management ("BLM") as the lead agency. BLM and EPA initiated formal consultation with FWS regarding the Elk Hills Power Project on December 10,

1999. As part of this consultation, FWS issued a biological opinion on January 17, 2001 that discusses how the federal agency action affects each listed species and/or its designated critical habitat and sets forth all measures necessary or appropriate to avoid and/or minimize impacts on such species and critical habitat.

EPA has reviewed the biological opinion and determined that issuance of the final UIC permit is consistent with the requirements of the Endangered Species Act.

Comment No. 16:
EPA must comply with the requirements of section 106.of the National Historic Preservation Act ("NHPA") because EPA's proposal to issue a UIC permit is an "undertaking" as defined by the NHPA that has the potential to cause effects on historic properties.

Response No. 16:
Pursuant to section 106 of the National Historic Preservation Act, 16 U.S.C. § 470f, and its implementing regulations at 36 CFR Part 800, prior to the issuance of any license EPA must take into account the effect of its undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places, and must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertaking. EPA has determined that its UIC permitting action constitutes an "undertaking" as that term is defined in 40 CFR § 800.16(y). EPA is therefore required to: (1) consult with the appropriate State Historic Preservation Officer ("SHPO") to identify historic properties in the area of potential effects, and evaluate and resolve adverse effects on identified historic properties; and (2) identify other consulting parties to ensure adequate public involvement. EPA has satisfied its responsibilities under the National Historic Preservation Act at this time and may issue the final UIC permit.

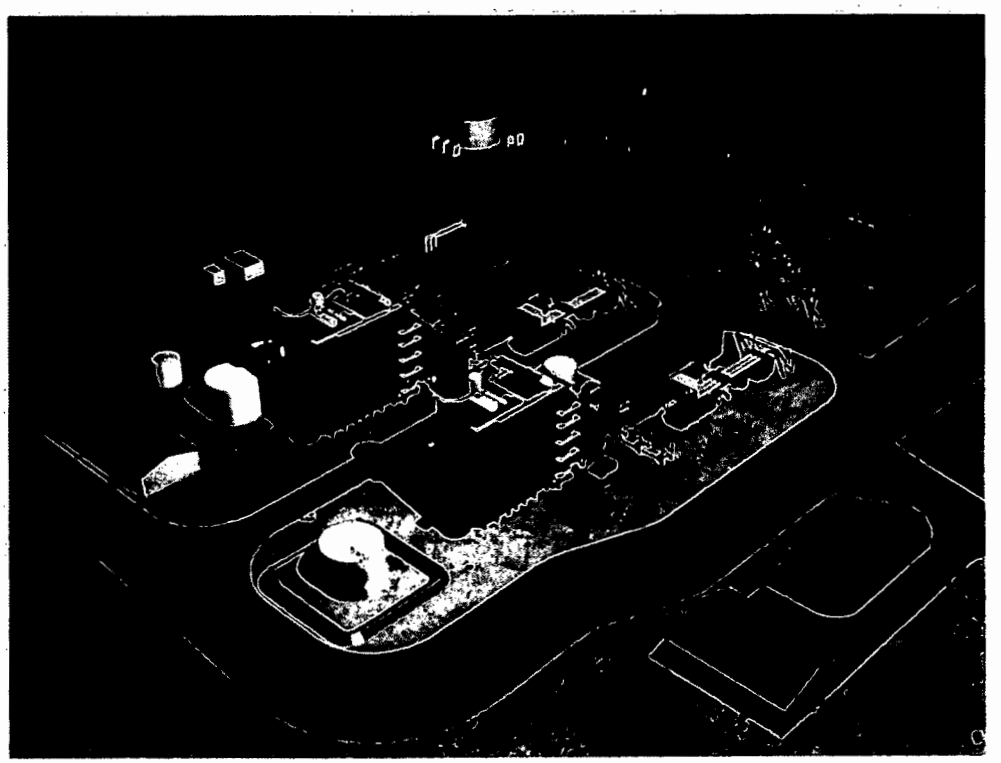
ATTACHMENT 3

EPA FRS ID No. 110012191430

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

for

ELK HILLS POWER PROJECT CONSTRUCTION



May 15, 2001

Submitted To:
Elk Hills Power, LLC
28590 Highway 119
Post Office Box 1001
Tupman, CA 93276-1001

Submitted By:
Quad Knopf, Inc.
5500 Ming Ave., Suite 410
Bakersfield, CA 93309

ATTACHMENT 3

EPA FRS ID No. 110012191430

Elk Hills Power, L.L.C.
Power Project, 2000 (99-AFC-1)
Biological Resources Mitigation Implementation and Monitoring Plan

Prepared for:

Elk Hills Power, L.L.C.
28590 Highway 119
P.O. Box 1001
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661.763.6363

Prepared by:

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May 15, 2001

EPA FRS ID No. 110012191430

Raymond Kelly
Compliance Manager

P.O. Box 460
Tupman, CA 93276

Tel: (661) 763-6662
Fax: (661) 763-6669

Elk Hills Power

August 7, 2001

Attn: Ms. Nancy Tronaas
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

Via: Fed Ex

Subject: Errata for the Biological Resource Mitigation Implementation and Monitoring Program
Elk Hills Power Project

Errata

To effectively incorporate changes to the Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) errata will occasionally be issued to reflect changes or additions to the document. The following are revisions to the BRMIMP and associated state and federal permits and agreements that are included as part of the BRMIMP:

- Changes to the BRMIMP table of contents: A new table of contents is provided to replace the current version.
- Changes to Section 1.3 of the BRMIMP: A new appendix divider page and text are provided for addition to the BRMIMP.
- Amendments to the Formal Section 7 Consultation on the Elk Hills Power Project, permit number 1-1-00-F-0022: A new appendix divider page and text provided for addition to the BRMIMP.
- Amendments to the California Endangered Species Act Permit, Incidental Take Permit Number 2081-2000-085-4, for the Elk Hills Power Project: A new appendix divider page and text are provided for addition to the BRMIMP.
- Addition of the California Department of Fish and Game (CDFG) Streambed Alteration Agreement A new appendix divider page and CDFG Streambed Alteration Agreement are provided for addition to the BRMIMP

The Formal Section 7 Consultation on the Elk Hills Power Project, permit number 1-1-00-F-0022 has been amended to reflect changes in the project that are associated with the expansion of the Midway substation. Additional mitigation measures have been incorporated into the Section 7 Consultation, therefore the new mitigation measures must become part of the BRMIMP. One new mitigation measure is a radio telemetry study on relocated kangaroo rats. The Section 7 amendment is found in Appendix 3.1.

The California Endangered Species Act Permit, Incidental Take Permit Number 2081-2000-085-4, for the Elk Hills Power Project has also been amended to incorporate the expansion of

Elk Hills Power

Midway substation. This amendment also includes additional mitigation measures that will be incorporated into the BRMIMP. As stated above for the biological assessment, new mitigation measures incorporated in the 2081 amendment include a radio telemetry study on relocated kangaroo rats. The 2081 amendment is incorporated in the BRMIMP as Appendix 4.1.

The CDFG has issued a Streambed Alteration Agreement under Section 1600 of the California Department of Fish and Game Code for the Elk Hills Power Project. This Agreement will be incorporated into the BRMIMP as Appendix 6. Mitigation measures that are required under this Agreement that are not currently part of the BRMIMP will be attached in Appendix 7.

Section 1.3 Maintenance and Distribution of the BRMIMP have been made to include Raymond Kelly of Sempra Energy as Project Permitting Manager (Compliance Manager) and remove Dennis CJ. Champion as the Project Permitting Manager. These changes can be found in Appendix 8.

Sincerely,

Raymond Kelly
Compliance Manager

Cc: Joe Risse, Sempra
Jeff Hanig, OEVC
Taylor Miller, Sempra
Tom Jennings, Sempra
Wes Rhodehamel, Quad Knopf
Anthony Perrino, Sempra
Rick York, CEC
Donna Daniels, CDFG
Peter Cross, USFWS
Larry Saslaw, USBLM

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FOLDER 1

1 INTRODUCTION

This Biological Resources Mitigation and Implementation Monitoring Plan (BRMIMP) details how Elk Hills Power, L.L.C. (EHP) will implement the requirements of certification for biological resources during the construction, operation, and maintenance of the Elk Hills Power Project (EHPP). The following Resource Agencies and property owners affected by the project are requiring the certification for biological resources:

- Bureau of Land Management (BLM),
- U.S. Fish and Wildlife Service (USFWS),
- California Energy Commission (CEC),
- California Department of Fish and Game (CDFG),
- Regional Water Quality Control Board (RWQCB),
- San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD),
- Kern County, and
- United States Army Corps of Engineers (ACOE)

When implemented, the protocols established in this BRMIMP will assist in avoidance of problems related to biological resources. This will be accomplished through identification of the biological resources in and near construction areas, development of a schedule and location for the proposed construction activities, anticipation of conflicts between construction activities and biological resources, and implementation of corrective measures before conflicts develop.

The protocols described in this BRMIMP will:

- provide for emergency response,
- establish a chain of command for resolution of conflicts between project construction and protection of biological resources, and
- detail procedures for reporting to the Resource Agencies regarding project compliance with mitigation measures.

The project compliance reporting will document any impacts to biological resources, effectiveness of mitigation measures, complications involved meeting permit conditions and/or mitigation measures, and any corrective actions implemented to resolve complications. A description of acronyms is included in the glossary.

1.1 Contents of the BRMIMP

The components of the BRMIMP include:

- a project description, construction schedule, and a schedule of the environmental compliance activities described in the Application For Certification, Final Staff Assessment, Presiding Members Proposed Decision, Revised PMPD and Final Commission Decision, Incidental Take Permit under Section 7, Incidental Take Permit under Section 2081 of the California Department of Fish and Game Code, Streambed Alteration Agreement under section 1603 of the California Department of Fish and Game Code if necessary.
- responsibilities of participants, qualifications of biological monitors, and communication protocols;
- an employee education program;
- pre-activity measures and reporting;
- compliance monitoring and reporting;
- post-construction cleanup and reclamation requirements;
- compensation;
- mitigation measures to be carried out during operation and maintenance (O&M) of the project.
- facility closure measures
- Appendix 1 identifies the duration, methodology, and frequency of monitoring activities;
- Appendix 2 lists the Terms and Conditions of the Section 7, the Energy Commissions Decision and the 2081;
- Appendix 3 provides a copy of the USFWS Section 7 Reference Number 1-1-00-F-0022; and
- Appendix 4 provides a copy of the CESA Incidental Take Permit 2081-2000-085-4

1.2 Revisions to the BRMIMP

Changes to the BRMIMP proposed by EHP and/or Resource Agencies will be submitted

in writing to the California Energy Commission Construction Project Manager (CPM/CEC), the Resource Agencies, and EHP for approval at least 30 days prior to implementation of the proposed change. The final 10 days of the 30-day period will be used to respond to comments and modify any changes to be mutually agreeable to CPM/CEC, USFWS, CDFG, and EHP.

If the CPM/CEC, USFWS, or CDFG request changes to procedures detailed in the BRMIMP, the changes will be described in writing to EHP, the Designated Biologist, and the other agency representatives. Comments will be returned to the originating agency. When changes are mutually agreeable, they will be incorporated into the BRMIMP. Disputes over revisions to the BRMIMP will be resolved as described in the Commission Members Decision. (Section IV. Compliance and Closure).

1.3 Maintenance and Distribution of the BRMIMP

During the construction phase of the power plant, the Biological Compliance Monitor will be responsible for maintaining the BRMIMP. During project operation, EHP compliance staff will be responsible for maintaining the BRMIMP up to date. Current versions of the BRMIMP will be distributed to the following individuals or their successors:

Nancy Tronas
Compliance Manager
California Energy Commission
1516 Ninth Street
Sacramento CA 95814
Phone: (916) 654-3864

Donna Daniels
California Department of Fish and Game, Region 4
1234 Shaw Avenue
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Phone: (559) 243-4014
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Project Permitting Manager
P.O. Box 1001
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Phone: (661) 763-6068

Kelly Blain
The Industrial Company
1550 James Road
Bakersfield, CA 9308
Phone (661) 391-5700

2 PROJECT DESCRIPTION

2.1 Power Plant

The power plant site located in within the Northeast ¼ of Section 35, Township 30 South, Range 23 East, of the East Elk Hills quadrangle, consists of 12 acres of natural gas processing complex operated by Occidental of Elk Hills, Inc (OEHI). Out-of-service tanks and equipment currently occupy the site formerly used for storage and loading of propane, butane, and natural gas liquid products. Access to the power plant site is provided through existing roads currently maintained by OEHI. Large equipment deliveries will access the construction site via a 40-foot wide, 135-foot temporary road extending from Elk Hills Road. A 20-foot wide, paved loop road provides access to facilities on the power plant site.

Approximately 12 fenced acres are required to accommodate the power plant, including the parking area, administration building, control building, water treatment building, storage tanks, generation facilities, and switchyard. A warehouse may be located outside the fenced area or the fenced area may be expanded to include the warehouse.

The power plant site has been previously graded and maintained for the existing out-of-service equipment. The project site elevation ranges from approximately 1,315 to 1,338 feet above mean sea level. Most of the site is unvegetated, although, there are some areas of vegetation between existing pipe racks and nearby dirt roads. The out-of-service tanks and equipment will be dismantled and removed from the site. Concrete pads for such equipment will also be demolished and removed for the site. Above ground pipelines that cross the power plant site will be relocated, as necessary, to allow construction of the plant.

The existing surface drainage from the site is primarily overland flow. However, drainage from the site is affected by existing grading and ditches along nearby dirt roads. The site will be cut and filled to provide a level area for the power plant at an elevation of approximately 1,330 feet above mean sea level.

Power plant construction will take about 15 months. Construction of the power plant will result in a temporary disturbance of approximately 0.0 acres and a permanent loss of approximately 2.87 acres of Valley Saltbush Scrub habitat. Nine acres within the site boundary are currently disturbed. The laydown areas are unvegetated, thus, no loss of vegetation will occur in those areas.

The power plant is expected to operate up to 24 hours a day and will generate minor additional traffic, due to a staff of about 20 permanent employees. The traffic generated by the project will be minor in comparison to existing traffic on Elk Hills Road and will be below levels of significance.

2.2 Transmission Lines

One 230-kv. transmission system supported on single-shaft tubular steel poles will be constructed for the project. Although three alternative transmission line routes have been proposed, Route 1A, Route 1B, and Route 1B Variation, the project will implement a single variation, Route 1B.

Transmission line Route 1B is based on a connection of the new transmission line with the 230 kV yard of the existing Midway substation owned by PG&E. Route 1B requires the addition of two termination positions in the 230 kV yard of the Midway substation. Transmission line alternative Route 1B has a total length of 8.6 miles. Route 1B runs parallel to the existing 115-kV Midway-Taft transmission line.

The transmission line consists of two separate 230 kV, 3-phase circuits, for six conductors. Each of the six conductors is a 1,590 MCM aluminum conductor, steel reinforced (ACSR), also known by the code as "Lapwing." The transmission line structures are single-shaft tubular steel poles ranging from 100 feet to 130 feet in height. Span lengths are typically 950 feet and may be up to 1,225 feet. No anchor guys are anticipated and where dead-end structures are required, each circuit may be individually dead-ended on a single pole in a vertical configuration. Foundations for the transmission line structures consist of single concrete piers reinforced as necessary to withstand design loads. Tangent structures have base sections directly embedded in the foundation or base plates mounted on anchor bolts embedded in the foundation. Dead-end structures have base plates mounted on anchor bolts embedded in a reinforced concrete foundation. The temporary land disturbance associated with the construction of the transmission lines is estimated to be 9.93 acres for Route 1B. The permanent land disturbances associated with the construction of the transmission lines is estimated to be 0.06 acres for Route 1B.

2.3 Pipeline Routes

Three pipelines would be constructed for the Elk Hills Power Project: a natural gas supply pipeline, a water supply pipeline, and a wastewater pipeline. Each of these is described below.

2.4 Natural Gas Supply

The project will be fueled with locally produced natural gas from the Elk Hills Oil and Gas Field. Natural gas is conveyed to the power plant site via a new 2,500-foot, 10-inch supply pipeline extending from an existing 20-inch gas pipeline. From the power plant site, the new supply pipeline extends generally west to the point of connection with the existing gas pipeline.

The expected pressure of natural gas delivered to the power plant is 800 pounds per square inch, gauge (psig). A pressure regulation station, filtering equipment, and a revenue-quality flow meter are provided at the downstream end of the new supply pipeline. Safety pressure relief valves are provided downstream of the pressure regulation station. The new supply pipeline will be positioned aboveground on pipe supports. The route of the new supply pipeline lies entirely within the Elk Hills Oil and Gas Field boundaries. Land disturbance associated with the construction of this pipeline is expected to result in 0.07 acres of temporary disturbance and 0.00 acres of permanent disturbance.

2.5 Water Supply Pipeline

West Kern Water District (WKWD) will provide water for the proposed project. The water will be conveyed via a new 9.8 mile, 16-inch water supply pipeline extending from existing WKWD facilities located east of the power plant site and adjacent to State Highway 119. Three pumps dedicated to the water supply pipeline, including one spare pump, will be located near existing WKWD facilities. The pumps will boost water from the WKWD facilities at 300 feet above mean sea level to the power plant site at 1,330 feet above mean sea level.

From the existing WKWD facilities (MP 9.8), the water supply begins underground and crosses both State Highway 119 and Tupman Road. After the road crossings, the water supply pipeline continues underground alongside existing underground pipelines, onto Elk Hills Oil and Gas field property. Once on Elk Hills Oil and Gas field property, the line emerges aboveground and continues aboveground on pipe supports alongside existing aboveground pipelines west and crossing Elk Hills Road to reach the power plant site (MP 0.0). The estimated land disturbance associated with the construction of the water pipeline is expected to be 20.52 acres temporary and 11.59 acres permanent.

The water supply pipeline is of steel material and underground portions are provided with a minimum of 36 inches of cover. Along nearly its entire length, the water supply pipeline route crosses hilly, naturally vegetated terrain that has been developed for oil and natural gas production. Access to the pipeline will be provided by existing dirt roads along most of the route. New roads will be kept to a minimum.

2.6 Water Disposal Pipeline

Wastewater collected in the plant wastewater collection tank is disposed of by injection into two new disposal wells located approximately 4 miles south of the power plant site. The new disposal wells will be located approximately one mile south of existing disposal wells used to dispose of produced water from the OEHI oil and gas field operations. A new 4.4-mile, 6-inch pipeline will convey the plant wastewater discharge to the two new disposal wells (one stand-by). The wastewater pipeline consists of steel material.

The wastewater pipeline originates at the power plant site and runs above ground on pipe supports, extending 0.1-mile east to Elk Hills Road. The pipeline crosses under Elk Hills Road and Skyline Road contained in a pipe chase. The pipeline then continues aboveground on pipe supports alongside an existing aboveground pipeline and adjacent to an existing dirt road, extending 4.3 miles south to the wastewater disposal wells.

Along its entire length, the wastewater pipeline route crosses hilly, naturally vegetated terrain. Access to the pipeline will be provided by existing dirt roads along most of the route. The entire wastewater pipeline lies within the Elk Hills Oil and Gas Field boundaries. Construction of the wastewater pipeline is expected to result in 8.63 acres of temporary disturbance and 0.00 acres of permanent disturbance.

2.7 Project Construction

On-site construction of the project is expected to take a total of 14 to 16 months. There will be an average and peak on-site construction workforce of approximately 240 to 250 individuals. The on-site workforce will consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel. The on-site workforce is expected to reach its peak during the eleventh month of construction. Construction laydown areas will be east of the power plant site, between the site and Elk Hills Road. Parking areas will be located in the 18G area. From the 18G parking area, construction workers will be bussed to the proposed power plant construction sites to reduce traffic and parking congestion as well as the potential for vehicle strikes. Construction access will be from east or west on SR 119 to Elk Hills Road, and north on Elk Hills Road to the site. Equipment and materials will be delivered by truck. Construction will typically occur between the hours of 6:00 a.m. and 6:00 p.m., Monday through Saturday. During critical equipment setup, startup, and testing phases of the project, power plant site construction activities may continue 24 hours per day, 7 days a week.

2.8 Schedule

An estimated schedule detailing construction periods is included as Appendix 5. Updates will be provided to the CM, CDFG and USFWS in each monthly report. Biological resource pre-construction surveys and implementation of mitigation measures will be conducted according to the phenological stages plants and critical activity periods of the target species.

Furthermore, the construction schedule will be in compliance with other provisions stated in the BRMIMP and other associated documents. Construction schedule updates will be included into the BRMIMP once revised. These updates are to be provided in the monthly report submittals.

3 RESPONSIBILITIES OF PARTICIPANTS

The following details the obligations of the Resource Agencies, biological resource monitors, EHP and its contractors and construction crews. In addition, procedures for communication, chain of command, and personnel granted the authority to stop or temporarily suspend surface-disturbing activities during construction, operation, and maintenance are discussed.

3.1 Agency Responsibilities.

Regulatory agencies are responsible for the protection of biological resources found in the project area and enforcement of regulations regarding their protection. The agencies and their respective approvals are listed in Table 1. Permit revocation is the ultimate enforcement mechanism. To evaluate compliance with the permits, the agencies may visit the project site and/or review reports and records generated by third party monitors, EHP, and EHP contractors.

The CEC has designated the CPM/CEC as the primary contact between the CEC and EHP, contractors, and third-party monitors.

Table 1: Agencies and Approvals

Agency	Permit or Agreement
BLM	Right-of-way permit for linear facilities on BLM land
USFWS	Section 7 Biological Opinion and Memorandum of Agreement between EHP and USFWS for compliance with Biological Opinion on non-BLM lands
CEC	Certification
CDFG	Section 2081(b) take authorization and 1603 Streambed Alteration Agreement, if needed
ACOE	Nationwide Permit 26
RWQCB	Clean Water Certification Waiver

Abbreviations: BLM = Bureau of Land Management; CEC = California Energy Commission; CDFG = California Department of Fish and Game; RWQCB = Regional Water Quality Control Board; USFWS = U.S. Fish and Wildlife Service; AOE = Army Corps of Engineers

3.2 Responsibilities of Third-party Biological Compliance Monitors

EHP will hire third-party biological compliance monitors. They have responsibilities to both the regulatory agencies and EHP.

Designated Biologist: The Designated Biologist has the responsibility to:

- prepare and carry out the mitigation monitoring program according to specified mitigation measures, permit conditions, and agency agreements;
- review the contractor submitted biological resource and environmental plans and documents and comment on their adequacy;
- notify the CPM/CEC when biological clearances have been obtained and the Notice to Proceed can be issued;
- ensure any variances or amendments to biological resource mitigation programs are reported, approved, and incorporated into the most current BRMIMP and distribute the current version of the BRMIMP;
- direct biological field inspection, monitoring, and training assignments;
- design, approve, and/or provide criteria for identifying biological resource facilities (e.g., signs, flagging, exclusion fencing, etc.), if needed;
- maintain a log of biological compliance activities, biological staffing, schedules, and reporting;
- schedule and carry out biological training for all project workers and vendors entering the project work area in cooperation with the CPM/CEC and appropriate Contractor Supervisors;
- authorize biological clearance for minor changes in project work and notify the Project Manager and CPM/CEC if agency notifications are required;
- identify unanticipated project-related biological impacts and work with the Elk Hills Environmental Compliance Monitor (EHP/ECM) and the CPM/CEC to develop and start modifications to project-wide mitigation measures to meet field conditions;
- review the biological inspection activities and any noncompliance issues at the weekly construction status meetings;

- participate in conflict resolution and troubleshooting regarding biological and construction concerns during construction;
- ensure any unresolved problems are reported to the EHP/ECM immediately;
- preparation of the following: weekly and monthly biological reports, pre-activity surveys, compliance monitoring, final construction monitoring, reclamation monitoring, and monitoring of any released animals.
- notify the EHP/ECM of any variances or amendments to biological resources mitigation plans;
- conduct and report the results of pre-activity surveys;
- ensure marking and posting of avoidance areas for sensitive biological resources;
- ensure construction contractors' activities are in compliance with the biological resource mitigation measures detailed in bid specifications, permits, plans, and commitments made during the planning and application processes;
- advise construction personnel, and particularly the Construction Inspector, about biologically preferred construction methods;
- identify unanticipated project-related biological impacts and work with the CPM/CEC and Construction Inspector to develop and start modifications to project-wide mitigation measures to meet field conditions;
- resolve and act accordingly to bring work activities that are not in compliance with biological mitigation measures into compliance, including suspension of work;
- notify the CPM/CEC of any variances or amendments to biological resources mitigation plans;
- administer and direct technical biological subcontractors;
- ensure that reclamation requirements for biological resources are appropriately completed;
- facilitate biological resource agency field inspections and visits.

Biological Monitors: The Biological Monitors will work under the supervision of the Designated Biologist. Each of these monitors has the responsibility to:

- advise EHP/ECM on the implementation of the biological resource conditions of CEC certification and other approvals;
- supervise or conduct mitigation, monitoring and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources;
- complete biological monitoring logs and incident reports on a daily basis, and prepare the monthly biological compliance report;
- advise construction personnel, and particularly the Construction Inspector, about biologically preferred construction methods;
- if actions contrary to biological mitigation measures are observed, resolve and act accordingly to bring activities into compliance, including suspending work;
- ensure any unresolved biological resource problems are reported immediately to the Designated Biologist;
- coordinate on a daily basis with the Designated Biologist, EHP/ECM, and the construction contractor to review construction progress, scheduled construction work activities, and special biological protection measures required for sensitive environmental areas;
- report any variances or amendments to biological mitigation measures to the Environmental Compliance Coordinator and the Designated Biologist;
- ensure that monitoring of any released sensitive wildlife is conducted appropriately and in a way that does not necessarily interfere with construction activities;
- conduct monitoring as directed by the Designated Biologist;
- maintain daily logs and incident reports;
- maintain daily report forms and prepare the weekly biological inspection report;

3.3 Responsibilities of EHP and Contractors

The EHP Environmental Permitting Manager (EHP/EPM) retains final responsibility for compliance with environmental mitigation measures. The EHP/ECM, who reports to him regarding environmental issues, has the responsibility to:

- ensure overall completion of the construction project in accordance with contract documents;
- help identify unanticipated project-related impacts and work with the EHP EPM and the Project Manager to develop and carry out modifications to project-wide mitigation measures to meet field conditions;
- issue Notice to Proceed to the contractor after confirming with the EHP/ECM that all environmental clearances have been obtained;
- direct overall construction inspection and supervision of the contractor's activities;
- participate in conflict resolution for environmental and construction concerns during construction;
- review the construction and inspection activities and any noncompliance issues at the weekly construction status meetings.

4 QUALIFICATIONS OF THIRD-PARTY MONITORS

4.1 Designated Biologist

Minimum qualifications for the Designated Biologist include completion of a Bachelor's Degree in biological sciences, zoology, botany, ecology or a closely related science; a minimum of 3 years experience in field biology. One year of field experience with the sensitive species occurring in the Elk Hills area (experience to consist of conducting biological surveys and research with the same or similar species); familiarity with construction procedures and experience monitoring construction projects. The ability to demonstrate to the satisfaction of the CPM/CEC the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation, and demonstrated qualifications as follows:

- familiarity with resource agency laws and regulations regarding endangered species, wetlands, and stream crossings;
- familiarity with the biology, recovery plans, and current handling techniques for species occurring in the project area;
- familiarity with the conditions of the project's biological resource(s) permits;
- understanding of regional and local plans for threatened and endangered species conservation, including familiarity with local and regional Habitat Conservation Plans and endangered species permit conditions for projects adjoining or overlaying the Project Area.

4.2 Biological Monitor

Minimum qualifications for the position of Biological Monitor include:

- a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;
- three years of field experience with biological resources with a minimum of one year experience with biological resources found in or near the project area;
- an ability to demonstrate to the satisfaction of the CPM/CEC the appropriate education and experience for the biological resource tasks that must be carried out during project construction and operation;
- familiarity with biology, recovery plans, and current handling techniques for species occurring in the project area;
- familiarity with the conditions of the project's biological resource(s) permits;

- understanding of regional and local plans for threatened and endangered species conservation, including familiarity with local and regional Habitat Conservation plans and endangered species permit conditions for projects adjoining or overlaying the project area.

If the CPM/CEC determines the proposed Designated Biologist to be unacceptable, EHP will submit additional qualifications for consideration. If the approved Designated Biologist needs to be replaced, EHP will obtain approval of a new Designated Biologist by submitting to the CPM/CEC the name and qualifications of the proposed replacement. No project related ground disturbance activities will be allowed in any designated sensitive areas until the CPM/CEC approves a new Designated Biologist and the new Designated Biologist is on site.

4.3 Roles and Authority of Third-party Biological Compliance Monitors

Third-party environmental compliance monitors (i.e. Designated Biologist or Biological Monitor), are responsible for independently ensuring that the requirements described in the BRMIMP are carried out completely and in a timely manner.
The Designated Biologist has the responsibility to manage compliance monitoring. In that role he/she has the authority to:

- suspend construction activities as needed for protection of sensitive species;
- review all construction drawings and construction schedules;
- design and direct the implementation of remedial measures for noncompliance issues;
- assure the adequate completion of reclamation measures;
- communicate directly with all agency representatives, construction supervisors, and workers as necessary;
- inform EHP and the CPM when to resume construction; and
- advise the CPM/CEC when corrective actions are needed or have been instituted.

Both the Designated Biologist and Biological Monitor have the authority to suspend activities to prevent serious harm to biological resources. The instruction to suspend construction will be given to a senior construction crewmember on the site; if necessary, the instruction to suspend an activity can be given directly to the operator of equipment or vehicles, or to an individual member of a ground crew.

As soon as the immediate danger of environmental harm is abated, then the monitor will inform the Construction Inspector and the appropriate Contractor Supervisor of the action taken and why it was necessary. They will discuss how it can be avoided in the future.

Work suspension may not last for more than four hours, without consulting with the CPM/CEC or, in his absence, the Construction Inspector. If a situation occurs that requires suspension of work activities for more than four hours, then the EHP/ECM and/or the Designated Biologist will consult with USFWS, CDFG, and/or CEC representatives for guidance on appropriate action. Information about this consultation will be shared immediately with the CPM/CEC and Construction Inspector, who will participate in developing a solution to the problem and a means of avoiding the problem in the future.

4.4 Roles and Authority of EHP, Contractors and Construction Crews

EHP, by signing the various project approval documents, has committed to carry out the mitigation measures described in this BRMIMP. Contractors will also commit, by signing the contract documents when the job is awarded, to comply with the relevant mitigation measures and to cooperate with the biological compliance monitors. The bid package will clearly identify the need to comply with environmental protection regulations, including requirements for the Biological Awareness Program and cooperation with biological compliance monitors.

The EHP/ECM will cooperate with the Designated Biologist by assisting in formulating solutions to problems associated with the protection of biological resources by requiring his crews to follow the directions of the Designated Biologist and Biological Monitor.

The EHP/ECM has the authority to stop construction for reasons consistent with the contractor's contract with EHP. The Designated Biologist and Biological Monitor have the authority to suspend construction for a period of up to four hours. If longer suspensions of activities are necessary, the EHP/EPM, Designated Biologist, Biological Monitor, and agency representatives will develop an appropriate plan of action to protect the resource at risk and resume activities as soon as possible.

5 BIOLOGICAL RESOURCE AWARENESS PROGRAM

EHP will develop and implement a CPM/CEC approved Biological Resource Awareness Program in which each of its employees, and employees of contractors and subcontractors who work on the project site or related facilities during construction and operation and maintenance, are informed about sensitive biological resources associated with the project. The Biological Resource Awareness Program will consist of a briefing to discuss the endangered species and sensitive biological resources in the project vicinity. The program will be developed by the Designated Biologist and presented by persons knowledgeable in the biology and needs of covered species and their legislative protection. Written material with this information will be distributed to all employees and others entering the project site.

The Biological Resource Awareness Program will consist of an on-site training presentation in which supporting written material is made available to all participants. The Biological Resources Awareness Program will:

- present the reasons for protecting these resources;
- present the meaning of various temporary and permanent habitat protection measures;
- identify contacts if there are further comments and questions about the material discussed in the program; and
- Be administered by a competent individual(s) acceptable to the Designated Biologist.

5.1 Content of Biological Resource Awareness Program

The Biological Resource Awareness Program will include:

- a description of the power plant and its associated facilities;
- discussion of locations and types of sensitive biological resources on the project site and adjacent areas;
- requirements of federal and state Endangered Species Acts;
- reasons for the biological resource protection measures being implemented during the construction, operation, and maintenance for protection of these species and their habitats;
- basic responsibilities of workers;

- nature reserves and protected areas in the Elk Hills area; and
- contact personnel if there are further comments and questions about the material discussed in the program.

This information will be presented in a booklet or similar format. Sensitive species known to occur in the project area will be described and illustrated with a color photograph. Cards will be issued with names and telephone numbers for use as emergency contacts. A hard-hat sticker will be supplied when the training is completed, making it easy for compliance monitors to establish which workers have taken the training class.

At least 60 days prior to the start of rough grading, EHP shall provide copies of the Biological Resource Awareness Program, all supporting written materials prepared by the Designated Biologist, and the name and qualifications of the person(s) administering the program to the CPM/CEC for approval.

5.2 Frequency and Documentation of Training

Environmental training will be provided to all project employees prior to the initiation of construction on the project site. After the initiation of construction of the power plant and associated facilities, new workers to the power plant project will be trained prior to starting work at the project site. For long-term workers, training must be repeated annually.

Each participant in the on-site Biological Resource Awareness Program will sign a statement declaring that the individual understands and will abide by the guidelines set forth in the program materials. Three copies of this document will be produced. The employee will retain one part, one part will be filed at EHP offices and be accessible to USFWS and CDFG, and one will be kept by the Designated Biologist. The person administering the program will sign the training sign-in ledger statement. The EHP files for documenting training during construction will be maintained until 6 months after the start of commercial operation. During project operation, signed statements for active project operations personnel will be kept on file for the duration of their employment and for six months after their termination.

6 SURVEYS AND REPORTING

6.1 Pre-activity Measures and Reporting

The primary use of pre-activity surveys is to locate sensitive biological resources identified during the biological surveys for the Application For Certification, identify new locations of sensitive biological resources, and implement take avoidance measures. The pre-activity measures will include:

- sensitive biological resource mapping effort,
- comprehensive pre-activity survey associated with the mapping effort,
- 14-day, pre-activity surveys.

During surface-disturbing O&M activities occurring outside of the fenced power plant and pumping plant, 14-day surveys will be sufficient for the protection of sensitive biological resources. However, if a large O&M project is planned, then it may be necessary to perform both a comprehensive and 14-day pre-activity survey (as described below).

6.2 Mapping

A Geographic Information System (GIS) will be developed to plot the resource information gathered during the pre-activity surveys described below. Locations will be obtained using a Geographic Positioning System (GPS), mapped and used to locate sensitive biological resources within the proposed construction areas. Maps of biological resource information will be presented in reports throughout the monitoring period. Maps can also be generated for immediate use in the field when needed. Sensitive Biological resources located during the surveys conducted for the AFC and during the spring of 2000 have been included in the GIS for the project and are present in Folder 1.

A map of the laydown areas at the power plant is included in Appendix 6. At least two weeks prior to construction activities along the linear facilities, a map of the all laydown areas will be provided. Laydown down areas are to be located in previously surveyed areas only. A copy of this map will be incorporated into this BRMIMP once it becomes available.

6.3 Aerial Photographs

Aerial photographs of the entire project area were obtained in April of 1998 and in May of 2000 to document the condition of the project area before construction. These photographs are in digital format to assist in their integration into the GIS database. They will be used to produce a basemap on which biological resource information can be plotted. The aerial photos flown in 2000 are color, ortho rectified, with a resolution of

1 meter. Because the aerial photos are digital there scaled is variable based on application. The Aerial photo imagery can be projected into NAD 83 Zone 5 in feet or meters. The 1998 photos were submitted in August of 1999 to the CEC as Data Request 34. Copies of these aerial photos are included in Appendix 6.

Post-construction aerial photographs of the project area will be flown at approximately the same time of year that the pre-construction aerial photographs were obtained. These photographs will be digitized and integrated into the GIS as a layer and used to compare pre-construction aerial photographs. One copy of these photographs is to be provided to CEC.

6.4 Comprehensive Pre-activity Surveys

Comprehensive pre-activity surveys will be conducted at the power plant site, the laydown area(s), the water pipeline route, the transmission line towers sites, and the water disposal line route. The results of these surveys will be used to identify resources to be avoided during construction. A GPS unit will be used to precisely locate dens, nests, and other sensitive resources within 500 feet of construction areas. The comprehensive pre-activity surveys will be conducted using the following survey methodologies:

- comprehensive pre-activity surveys for Blunt-nosed leopard lizards will be conducted during the appropriate time and temperature for blunt-nosed leopard lizard detection (from April 15 to June 30 and from August 1 to September 15, when air temperatures are between 25 and 35 degrees Centigrade measured with the thermometer in the shade 1 to 2 centimeters above the ground and soil temperatures are between 30 and 50 degrees Centigrade at a depth of 2 centimeters, shaded). Transects that provide 100% coverage of the work area will be walked on three consecutive days.

- In suitable habitat for Tipton kangaroo rats (i.e. east of the California Aqueduct), transects that provide 100% coverage of the work area will be walked. All areas of occupied habitat will be mapped to simplify implementation of the avoidance measures.

- All San Joaquin kit fox dens will be identified during these surveys.

- If the construction site is within an area that is occupied by giant kangaroo or is giant kangaroo rat habitat, transects that provide 100% coverage of the work area will be walked. All areas of occupied habitat will be mapped to facilitate implementation of impact avoidance measures detailed in this document.

- In areas where San Joaquin antelope squirrels may be present, transects that provide 100% coverage of the work area will be walked on two consecutive days, unless positive signs are identified during surveys conducted on the first day. Transects will be walked between the dates of April 1 and September 30 and when air temperatures are between 20 and 30 degrees Centigrade (68 and 86° F). These surveys can be done concurrently with blunt-nosed leopard lizard surveys.

- In areas where LeConte's thrashers may be present, transects that provide 100% coverage of the work area will be walked to find active nests. Areas where active nests are found will be mapped.

Surveys to locate populations of sensitive botanical resources were conducted as part of the biological resource surveys for the Application for Certification (AFC). Maps

detailing the location of the sensitive botanical resources were produced for the AFC. These maps will be added as a layer within the GIS and used to identify areas to avoid during construction (Folder 1). Sensitive botanical resources will be located during the 14-day preactivity and new sensitive botanical resource will be mapped and added to the GIS. Data sheets for newly identified occurrences will be prepared and sent to the California Natural Diversity database.

Construction of avoidance areas will be done within the 14-day period before construction. Each avoidance area will be maintained until nearby construction activities have been completed. Once construction activities are complete, the avoidance areas will be removed.

EHP will conserve topsoil of the area where the sensitive botanical resource occurred and redistribute it in the disturbed area as part of the reclamation effort. These efforts are described in the reclamation plan prepared for the project.

6.5 Fourteen-day, Pre-activity Surveys

Pre-activity surveys for sensitive species and their habitats will be conducted before surface-disturbing activities during construction and during O&M of the project. No more than 14 calendar days before the beginning of construction in any particular area, the area will be resurveyed under the supervision of the Designated Biologist. To conduct these surveys, the biologist will re-inventory the project area (including a 500-foot-wide buffer zone around each area) that will be subject to vegetation clearance and grading for the occurrence of listed species and species of special concern. For Transmission lines, the area to be reinventoried does not include the entire transmission line right-of-way, only those areas that will be disturbed by construction of the transmission line and the associated 500 foot-wide buffer zone of the particular area in question will be surveyed. Project areas subject to modification include the following:

- power plant site;
- laydown and staging areas for construction materials;
- employee parking areas that are not currently in existence;
- pipeline routes;
- water pumping station;
- water storage tank site;
- transmission tower sites;
- new access roads (graded permanent roads) and access routes (ungraded temporary routes);
- pulling sites; and
- other areas subject to disturbance.

During the survey of any particular area, the status of any sensitive resources previously identified will be reviewed, and the project area will be searched for additional listed species and sensitive resources. All sensitive resources will be flagged for avoidance and marked with signs as described below.

6.6 Avoidance Areas

Avoidance areas will be established for dens of San Joaquin kit foxes; burrows of Tipton kangaroo rats, giant kangaroo rats, San Joaquin antelope squirrels, and burrowing owls; populations of listed plants, and areas that provide habitat for vernal pool fairy shrimp (if any). These will be identified by stakes connected by tape flagging, or by other fencing approved by USFWS and CDFG. Flagging will be used to increase the visibility of the avoidance areas.

The radius distances presented in Table 3 and measured outward from the den or burrow entrances, nests, or the edge of the plant population determine each avoidance area. The avoidance areas will be established with lath (or similar material) and tape flagging (or similar material) no more than 14 days before the start of construction. Avoidance areas will be maintained until construction activities are completed in the construction area, and then will be removed. If specified avoidance areas cannot be avoided for any reason, USFWS and CDFG will be contacted for guidance prior to ground-disturbing activities on or near the subject resource.

Table 3: Avoidance areas

Biological Resource	Radius of Resource Avoidance Area
Kit fox natal den (occupied must notify the USFWS)	1000 feet
Known kit fox natal or pupping den	150 feet
Kit fox den (occupied)	100 feet
Known Kit fox den (unoccupied)	100 feet
Potential kit fox den	50 feet
Atypical kit fox den	50 feet
Tipton or giant kangaroo rat burrow	50 feet
Nests of sensitive raptors (during breeding season only)	1,320 feet
Occupied LeConte's thrasher nest (breeding season)	100 feet
Occupied burrowing owl burrow (breeding season)	250 feet
Occupied burrowing owl burrow (non-breeding season)	150 feet
Hoover's eriastrum (Hoover's woolly-star)	50 feet
Listed plants	100 feet

6.7 Treatment of San Joaquin Kit Fox Dens

If a kit fox den within the project area can not be avoided, the procedure detailed below will be carried out. Before surface-disturbing activities, potential kit fox dens will be monitored for three consecutive nights by placing tracking material (sifted dirt or diatomaceous earth) at the entrance to the burrow. After three nights, if the den is determined to be unoccupied, the den may be completely excavated and backfilled to preclude later use by kit foxes. If kit fox(es) are encountered in a burrow during excavation of a den that has been determined to be unoccupied, any kit fox(es) will be allowed to escape unharmed before backfilling.

Potential dens within the construction area, that are not occupied (as determined by the above procedures) by San Joaquin kit fox and can be avoided by construction activities, will be covered with plywood that is firmly secured to prevent kit fox access. The covers will not be installed for more than 14 days before the start of construction. The covers will remain in place for the duration of construction activities in the area, after which, they will be removed.

Potential kit fox dens will be excavated without further notification to USFWS or CDFG, if the following conditions are satisfied:

- The den is classified as a potential den by the Designated Biologist; in accordance with the classification system detailed in the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbing Activities.

- The excavation is conducted by, or under the direct supervision, of the Designated Biologist.

However, if the Designated Biologist classifies the den as a known kit fox den, known, suspected, or potential natal den, EHP or its representative will contact CDFG Region 4 Office, CEC, and the Sacramento Fish and Wildlife Office of the USFWS to discuss the reasons that avoidance is not possible. Depending upon the circumstances, EHP recognizes that USFWS, CEC, and CDFG may either require alternative avoidance or authorize the den excavation. Excavation of the den can proceed with verbal concurrence from USFWS, CEC and CDFG. Written concurrence will follow and will be included in the weekly project logs and included in the monthly compliance report. The den will be excavated by, or under the direct supervision, of the Designated Biologist. For the purposes of this requirement, any den with three or more entrances will be considered a potential kit fox natal den.

If, after following all procedures in the standardized recommendations, the Designated Biologist is unable to ensure protection of an individual kit fox successfully, he will contact USFWS, CEC, and CDFG for further guidance.

The results of this contact with USFWS, CEC, and CDFG will be included in the weekly logs and the monthly compliance report.

6.8 Measures for the Protection of Blunt-nosed Leopard Lizards, Tipton Kangaroo Rats, Giant Kangaroo Rats, and San Joaquin Antelope Squirrels

The following measures will be carried out by EHP during all ground disturbing construction or off-road travel related to the power project to protect blunt-nosed leopard lizards, Tipton kangaroo rats, giant kangaroo rats, and San Joaquin antelope squirrels. These measures will be reevaluated, in consultation with the USFWS and CDFG, if major surface-disturbing projects are proposed during O&M of the project.

The power plant and nearby laydown areas will be cleared and fenced in accordance with the protocols described in section 6.8.5. Power plant construction activities will be limited to the fenced area and traffic limited to paved roads serving the site.

Measures specific to pipeline and transmission line construction will be implemented for surface-disturbing activities such as: clearing and grubbing pipeline right-of-ways, clearing of tower sites, construction of the tower bases, and erection of towers. Other activities, such as insulator installation, stringing conductor, and pull site access, do not result in significant surface disturbance and will not require trapping of animals.

6.8.1 Blunt-nosed Leopard Lizards

In order to delineate those areas of the project that possess a high potential to support populations of blunt-nosed leopard lizards from areas with lower potential, the construction sites will be separated into 2 classes. These classes are described below:

- **Class 1:** Areas where blunt-nosed leopard lizards have been observed within the 1,000-foot biological survey area for the project or where they have recently been observed during other biological surveys.

- **Class 2.** Areas where blunt-nosed leopard lizards have not have been observed in the vicinity of the project. (This does not mean that blunt-nosed leopard lizards are absent from these areas). Habitat capable of supporting this species may still be present, however the potential for this species to occur is less likely).

During the spring of 2000 blunt-nosed leopard lizards were observed during biological surveys of the Elk Hills Power Project transmission line, fresh water supply line, and water disposal line routes. Blunt-nosed leopard lizards were observed within the 1,000-foot survey corridor of the transmission line in Sections 12 and 13, Township 30 South, Range 23 East, East Elk Hills, USGS 7.5 minute quadrangle. Blunt-nosed leopard lizards were also identified in the 1,000-foot survey corridor of the water disposal line in

Section 18, Township, 31 South, Range 24 East, Taft, USGS 7.5-minute quadrangle. In addition, blunt-nosed leopard lizards have been observed Sections 7 and 12, Township 31 South, Range 24 East, of the Taft quadrangle and Section 5 of Township 31 South, Range 25 East of the Tupman quadrangle yet were not observed during the spring 2000 surveys. The previously described areas will be considered **Class 1**.

Measures to be implemented for **Class 1** areas are as follows:

- Construction will occur only during daylight hours.
- Earth disturbing construction activities will be allowed from April 15 through June 30.
- During periods when blunt-nosed leopard lizards are active above ground and where blunt-nosed leopard lizards are observed within the construction area that will require earth disturbing activities, exclusion fencing will be installed around the construction sites.
- The Designated Biologist or another qualified biologist will walk transects of all proposed construction areas that will be impacted by earth disturbing activities. Walking of the transects will be conducted to provide 100% visual coverage of the area.
- When necessary to protect the species, barrier fencing will be built to exclude blunt-nosed leopard lizards from the work areas where blunt-nosed leopard lizards or their sign have been observed within 100 feet of a construction areas or access roads
- Any blunt-nosed leopard lizard that is found within a fenced exclusion area will be allowed to escape from the fenced exclusion area prior to any construction in the exclusion area.
- All unavoidable small mammal burrows will be carefully hand excavated, no sooner than 7 days prior to ground disturbing construction activities. The Designated Biologist or Biological Monitor will conduct excavations. If blunt-nosed leopard lizards are encountered during these excavations they will be allowed to escape unharmed and the CEC, CDFG, and USFWS will be contacted for guidance.
- If clearing and other ground disturbing actives for the portions of the project in Class 1 areas are completed during the April 15 to June 30 window, other non-ground disturbing construction activities may still occur within Class 1 areas outside of the April 15 to June 30 window. Allowable activities would include the delivery of pipe, construction of lattice towers, stringing wire, welding and placement of pipe, placement of pipeline footers, drilling of wells, and other

activities that do not involve disturbance of areas not previously disturbed.

Measures to be implemented for **Class 2** areas are as follows:

- During periods when blunt-nosed leopard lizards are active above ground and where blunt-nosed leopard lizards are observed within the construction areas that will require earth disturbing activities, exclusion fencing will be installed around the construction sites. These sites will then be designated as **Class I** sites.

- The Designated Biologist or another qualified biologist will walk transects of all proposed construction areas that will be impacted by earth disturbing activities. Walking of the transects will be conducted to provide 100% visual coverage of the area.

- When necessary to protect the species, barrier fencing will be built to exclude blunt-nosed leopard lizards from the work areas where blunt-nosed leopard lizards or their sign have been observed within 100 feet of a construction areas or access roads

- Any blunt-nosed leopard lizard that is found within a fenced exclusion area will be allowed to escape from the fenced exclusion area prior to any construction in the exclusion area

- All unavoidable small mammal burrows will be carefully hand excavated, no sooner than 7 days prior to ground disturbing construction activities. The Designated Biologist or Biological Monitor will conduct excavations. If blunt-nosed leopard lizards are encountered during these excavations the will be allowed to escape unharmed and the CEC, CDFG, and USFWS will be contacted for guidance.

No take of blunt-nosed leopard lizards, a fully protected species, will be allowed during this project.

6.8.2 Tipton Kangaroo Rats

If construction activities cannot avoid burrows typical of those excavated by Tipton kangaroo rats, trapping and relocation procedures will be initiated. Tipton kangaroo rats will be trapped in those areas where sign has been observed during surveys. At most, the trapping will be conducted in natural areas east of the California Aqueduct, because the current accepted species distribution does not extend west of the California Aqueduct.

Trapping will be conducted for a minimum of three nights using at least one trap per active burrow. If Tipton kangaroo rats are still being captured on the third night, trapping will continue until there are two consecutive nights of trapping with no captures. Tipton

kangaroo rats will be captured using Sherman™ live traps modified to reduce tail injury or equivalent traps authorized by USFWS and CDFG. Traps will be baited with a mixture of millet, cracked oats, and peanut butter. After capture, the animals will be weighed, sexed, and their reproductive condition noted. The results of trapping will be recorded in the weekly logs and included on the monthly compliance report.

After trapping is completed, all burrows within the construction zone will be excavated using hand tools following trapping. When Tipton kangaroo rats have been trapped and removed from a work area, it is likely that Tipton kangaroo rats from adjacent areas will move into the work area at night. Therefore, when Tipton kangaroo rats have been trapped and removed from a work area, nighttime project traffic will be prohibited in the work area (except traffic necessary for conducting biological surveys or associated research will be permitted). Each morning the Designated Biologist or Biological Monitor will inspect the area before work begins to verify that no Tipton kangaroo rats have moved onto the working area during the preceding night. If Tipton kangaroo rats are observed in the working area, construction will be suspended until they are trapped and removed. Any burrows will be excavated using hand tools. Animals will be held and released according to the protocols described below in this BRMIMP. If it is likely that Tipton kangaroo rats will recolonize the construction site or excavations that will be open for long periods of time, exclusion fencing can be installed around the construction site.

In all areas where species are captured, construction activities and appropriate reclamation procedures will be completed within four weeks so that the animals can be released back to their original locations.

6.8.3 Giant Kangaroo Rats

Giant kangaroo rats and giant kangaroo rat precincts will be avoided through rerouting and relocation of facilities. In instances where avoidance cannot be accomplished, giant kangaroo rats will be trapped. Trapping will occur in those areas where sign has been observed during the pre-construction surveys.

Trapping will be conducted for a minimum of three nights, using at least one trap per active burrow. If giant kangaroo rats are still being captured on the third night, trapping will continue until there are two consecutive nights of trapping with no captures. Giant kangaroo rats will be captured using Sherman™ live traps modified to reduce tail injury or equivalent traps authorized by USFWS and CDFG. Traps will be baited with a mixture of millet, cracked oats, and peanut butter. After capture, the animals will be weighed, sexed, and their reproductive condition noted. The results of Giant kangaroo rat trapping efforts will be recorded in the weekly logs and included on the monthly compliance report.

All burrows within the construction zone will be excavated using hand tools following trapping. When giant kangaroo rats have been trapped and removed from a work area, it is likely that giant kangaroo rats from adjacent areas will move into the work area at

night. Therefore, when giant kangaroo rats have been trapped and removed from a work area, nighttime project traffic will be prohibited in the working area (except traffic necessary for conducting biological surveys or associated research will be permitted). Each morning the Designated Biologist or Biological Monitor will inspect the area before work begins to verify that no giant kangaroo rats have moved into the working area during the preceding night. If giant kangaroo rats are observed in the working area, construction will be suspended until they are trapped and removed. They will be held and released according to the protocols described below in this BRMIMP.

If necessary, exclusion fencing will be installed around open holes and trenches within 50-feet of giant kangaroo rat burrows. It may be necessary to erect exclusion fencing around the construction area to eliminate movement of sensitive species the area during trapping.

6.8.4 San Joaquin Antelope Squirrels

San Joaquin antelope squirrels and burrows typical of those excavated by San Joaquin antelope squirrels will be avoided through rerouting and relocation of facilities when possible. In instances where avoidance cannot be accomplished, San Joaquin antelope squirrels will be trapped. Trapping will occur in those areas where sign has been observed during the pre-construction surveys. San Joaquin antelope squirrels will be trapped in construction areas where sign has been observed during surveys. San Joaquin antelope squirrels must be trapped for a minimum of three days, using at least one trap per active burrow. To reduce the likelihood of a trap related mortality, the traps must be placed in thermally protected areas and checked every 2 hours.

Unless otherwise approved by CDFG, trapping must take place from April through June. All burrows will be hand excavated to remove unobserved animals and to discourage use of the area during construction. Continuous monitoring will be conducted during construction activities. The results of San Joaquin Antelope squirrel trapping will be recorded in the weekly logs and included on the monthly compliance report.

In all areas where species are captured, construction activities and appropriate reclamation procedures will be completed within four weeks so that the animals can be released back to their original locations.

6.8.5 Exclusion Fencing

Exclusion fencing will be constructed of the following materials; solid flashing, wire mesh covered with sturdy plastic, or siltation fencing. If installed for extended periods of time the exclusion fencing will need to be maintained. All exclusion fencing will be buried along the bottom edge and extend at least 24 inches above the ground. The barrier fence will be kept in place until construction has moved at least 100 feet from the location of the sign and trapped animals have been released into the area.

6.8.6 Release of Captured Animals

All captured Tipton kangaroo rats and giant kangaroo rats will be temporarily housed in ventilated containers of at least 12 inches long by 12 inches wide by 4 inches high. The containers will be partially filled with substrate material and will be kept in the shade or indoors where ambient temperature will not exceed 35 degrees Centigrade or be allowed to drop lower than 20 degrees Centigrade. Likewise, temperatures will not exceed 35 degrees Centigrade during transport. Appropriate food items will be provided. The animals will be transferred within 24 hours to a permitted facility at Elk Hills. The animals may also be housed at another suitable facility if agreed to by the USFWS, CDFG and EHP. Animals will be kept in appropriate temperature conditions and fed each day.

All captured Tipton kangaroo rats and giant kangaroo rats will be released when construction is completed in the area and the nearest construction activity is at least 100 feet away from the release site. In any case, animals will be held for no longer than 30 days or until 10 percent body weight has been lost, whichever period is shorter. When released, the animals will be returned to their place of capture and placed in or near the opening to an existing burrow or artificial burrow if an existing burrow is not available. Artificial burrows will be constructed according to specifications provided in Appendix E. Soil compaction, topsoil replacement, and grooming will be completed before animals are released.

San Joaquin antelope squirrels will be captured using Sherman™live traps modified to reduce tail injury or equivalent authorized by CDFG. After capture, the animals will be weighed, sexed, reproductive condition noted, and released outside the construction area in or near the openings of currently unoccupied, but usable small mammal burrow.

6.9 Measures to Protect Burrowing Owls, Raptors, and LeConte's Thrashers

The following take avoidance measures will be carried out to protect important resources for birds.

6.9.1 Burrowing Owls

Avoidance areas will be staked when burrowing owl burrows are located outside the impact area. Where the avoidance areas cannot be fully implemented, the following measures will be carried out:

- Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from occupied burrows are foraging independently and are capable of independent survival. Verification of the nesting status of a burrowing owl burrow can be accomplished through the use of a fiberoptic scope or small video camera.

- When destruction of occupied burrows is unavoidable, existing unsuitable burrows will be enhanced (enlarged or cleared of debris).
- If owls must be moved away from the disturbance area, passive relocation techniques will be used, rather than trapping. At least one week is necessary to accomplish this allowing the owls to acclimate to alternate burrows.

6.9.2 Passive relocation with one-way doors

This technique will be employed to exclude owls from burrows in areas where ground-disturbing activities will occur and within a 160-foot buffer zone. One-way doors (e.g., modified dryer vents) will be placed in burrow entrances for a minimum of 48 hours to insure owls have left the burrows before excavation. Two natural burrows will be enhanced for each burrow in the project area destroyed or rendered unsuitable for burrowing owl occupation. The project area will be monitored daily for one week to confirm that owls are using the new burrows prior to excavating burrows in the impact zone. Whenever possibly, each burrow will be excavated using hand tools and refilled to prevent reoccupation. To prevent the burrow from collapsing during excavation, a section of flexible plastic pipe will be inserted into the tunnel(s) during excavation to maintain an escape route for any animals remaining inside the burrow. Prior to excavation, the burrow can be examined for occupancy by burrowing owls by using a fiber-optic scope or small video camera. The results of relocation efforts and any burrow excavations will be recorded on field forms. This field information will be entered in the weekly logs and presented in the monthly compliance report.

6.9.3 Replacement Burrows

Because of the number of burrows in the project area suitable for occupation by burrowing owls, artificial burrows will not be required to replace destroyed burrows. Instead, burrows within the area will be rehabilitated at a ratio of 2 to 1. The project area will be monitored daily until the owls have relocated to the new burrows. The formerly occupied burrows may then be excavated.

6.9.4 Active Raptor Nests

Whenever an active raptor nest (e.g. nest currently occupied by raptor, eggs, or fledglings) is found within one-quarter mile (1,320 feet) of a construction area, construction will not be conducted during the breeding season and will be delayed until either the nest has been abandoned or the young have fledged.

6.9.5 Active LeConte's Thrasher Nests

If an occupied LeConte's thrasher nest is identified within 100 feet of a construction area, construction will not proceeded until either the nest has been abandoned or the young have fledged.

6.9.6 California Condor

Since reintroduction efforts for California condors were initiated, 5 condors have died from colliding with power lines and or poles. Because of condor motility from contacting power poles or power lines, condors started undergoing power line aversion training in 1995 before being released.

- During the construction of the new Elk Hills power project transmission line, EHP will install USFWS-approved bird flight diverters on the new transmission line ground wire(s). Specifications for these diverters are discussed in the Avian Power Line Interaction Committee's 1994 and 1996 State of the Art Handbook (APLC 1994 and 1996). Other approved projects in the area have used Swan Flight Diverters that are manufactured by Dulmison, 1725 Purcell Road. Lawrenceville, Georgia 30243.

- All ground wires on transmission lines shall be equipped with bird flight diverters;

- Suitable spacing shall be provided between conductor wires to minimize risk of electrocution for California Condors;

- Bird flight diverters shall be installed to manufacture's specification before the line is energized; and;

- Bird flight diverters shall be maintained for the life of the facility.

- Diverters will be inspected every 3 years and will be replaced when damaged, missing or deemed defective.

- Prior to stringing of transmission lines, the project engineer will provide the Project Biologist and the CEC/CPM, a copy of the specifications for the installation and maintenance of the bird flight diverters.

No take of California condors, a fully protected species, will be allowed during this project.

6.10 Identification of Construction Areas

Fencing designed and built to last for the expected term of construction will be installed around the power plant site and adjacent laydown areas. Work will be confined to the fenced areas except for linear facilities.

Work areas for linear facilities will be designated with wooden stakes and tape flagging. These designated work areas will remain in place until nearby construction is completed.

- No later than 10 days prior to the energizing of the new transmission line, the project

owner will provide photographic and written verification to the CEC/CMP that all diverters have been installed in accordance with the manufacturer's specifications for the full length of the new transmission line. The contractor installing the diverters and the project engineer responsible for the transmission lines will prepare a brief report verifying the above.

- The Final BRMIMP will provide complete guidance regarding bird flight diverter installation and maintenance. This information will be prepared in report format by the project engineer responsible for the transmission lines.

- Copies of this document will be presented to the Designated Biologist, CMP, ECM.

6.11 Signage, and Posting of Speed Limits

On existing oil field roads that will be used for construction of linear facilities, the speed limit signs will be posted every 1 mile and at all road junctions. Signage will include the speed limit and information regarding the prohibition against cross-county travel. There will be a 10-MPH speed limit enforced in areas with Blunt-nosed leopard lizards and/or populations of San Joaquin antelope squirrels (population levels will be based on pre-activity surveys and consultation with USFWS and CDFG staff.). A 25-MPH speed limit will be observed in all other project areas except on county roads and State and Federal highways.

6.12 Fourteen Day Pre-activity Survey Data Forms

A 14-day pre-activity survey form will be developed to help in the performance of pre-activity survey and maintenance of a pre-activity survey database. The Designated Biologist will maintain copies of the completed forms. When the power plant is operating, the forms will be kept on the site. Pre-activity survey forms will be made available for inspection by regulatory agencies upon request.

6.13 Comprehensive Pre-activity Survey Reports

The Designated Biologist will prepare a report summarizing results of the comprehensive pre-activity surveys. The report will be submitted to the CEC for distribution with the first monthly report. The report will include:

- survey methodologies;
- maps, and tables describing sensitive biological resources observed; and
- a schedule of 14-day surveys.

6.14 Fourteen-day Pre-activity Survey Reports

The Designated Biologist will prepare monthly reports detailing the results of 14-day pre-activity surveys preformed during the previous month. The report will be submitted to the CEC for distribution and will include descriptions of:

- survey methodologies;
- flagging and signage of construction areas and roads;
- flagging of avoidance area;
- sensitive biological resources observed; and
- impact avoidance measures carried out

6.15 Mitigation Performance Standards

The mitigation measures as stated in the Section 7 and 2081, are designed to minimize the impact of incidental take on a species that might result from the proposed project. If, during the course of this project the level of incidental take is determined to be, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The federal and state resource agencies must immediately provide an explanation of the cause of the taking, participate in the review and the subsequent revision for the modification of the mitigation measures.

Because of the difficulty of quantifying the number of sensitive species that could be taken as a result of the project, both state and federal agencies are quantifying the amount of incidental take as the numbers of habitat that will be come unsuitable as a result of the project. Table 4 illustrates the amount of habitat that is anticipated to be permanently and temporarily disturbed as a result of this project. The following performance standards will be used to assess the effectiveness of the mitigation measures required for this project:

A tally of the habitat disturbance will be conducted daily using GPS. This data will be incorporated into the project GIS and a monthly total of the disturbed habitat will be provided. Habitat disturbance shall not exceed the amount that has already been agreed to and compensated for this project. If during the weekly monitoring it is determined that of habitat is being taken in excess of what is allowed for the project, a review of project related construction activities will be conducted with the CDFG, USFWS, CPM, ECM, and the Designated Biological. This review will be focused on determining the cause of the excess habitat taking and developing strategies to prevent the project from exceeding the habitat take limits allowed in the Section 7 and 2081 permits.

- Any incidental take of a fully protected species will be considered as a non-compliance with the mitigation measures and require further consultation with the agencies.

- Analysis of past revegetationon efforts on the Elk Hills has indicated that natural recovery will provide equivalent results as demonstrated in the following studies:

- Otten, M.R.M., and B.L. Cypher, 1997. Conservation Plan for Protected Species on Naval Petroleum Reserve No. 1, Kern County, California. EASI Topical Report No. 97-2. July

- Henshaw, J.M., B.L. Cypher, and G.L. Holmstead, 1999. Efficacy of Habitat Reclamation for Endangered Species at the Elk Hills Oil Field, California. 1999 Transactions of the Western Section of the Wildlife Society 35:63-70

- Anderson, D.C., and B.L. Cypher, 1995 Unpublished Manuscript. Evaluation of Revegetation Rates on Reclaimed and Non-reclaimed Disturbed Sites on Naval Petroleum Reserve No. 1 May

- Anderson and Cypher found that the time required for vegetation location on flat and moderately sloping disturbed sites to attain a 70% success standard was about 5 years for natural recovery and 8 years for artificial revegetation similar to that being prescribe for this project. Indeed some artificially reclaimed sites never achieved 70% success rate. Therefore, we propose that revegetation efforts be approached as described in Section 8.5 Reporting of Reclamation Activities.

7 BIOLOGICAL COMPLIANCE MONITORING REPORTING

This section outlines the biological compliance monitoring required during construction and O&M of the power plant, remediation of non-compliance issues, and reporting.

7.1 Scope of Monitoring

The amount of time a biological monitor will be required at a construction area is dependent upon the biological resources in the work area and the intensity of the construction activity. When excavation is occurring or trenches will remain open, construction materials are deployed for installation, and/or construction traffic is heavy, a full-time biological compliance monitor will be required. In these instances, daily (or more frequent) biological inspections will:

- evaluate compliance with installation of escape ramps or covers to prevent entrapment of wildlife;
- inspect excavations for trapped wildlife each morning before the onset of construction, and prior to excavation being back filled. Any sensitive species discovered within an excavation will be allowed to escape voluntarily, without harassment, before construction activities resume, or be removed from the trench or hole by the Biological Monitor or Designated Biologist;
- inspect construction pipes, poles, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods before the subject pipe is subsequently buried, capped, or otherwise used or moved in any way; and
- exposed pipes that will remain in open trenches overnight will be capped. If a kit fox, or other sensitive species, is discovered inside a pipe, that section of pipe will not be moved until USFWS, CEC, and CDFG has been consulted. If necessary, the Designated Biologist or Biological Monitor can supervise the movement of the pipe. The pipe may be moved only once to remove it from the path of construction activity, and will remain undisturbed until the animal has escaped.

Although the following inspections will be preformed any time a monitor is in the construction area, inspections will be conducted at least once a week to ensure that:

- avoidance areas are flagged and fencing remains in place where needed. In addition, inspection will insure that fencing and flagging has been removed in areas where construction is completed;
- construction area boundaries are clearly delineated by fencing or staking and flagging;
- speed limit signs are in place and accurate;
- equipment storage and parking are confined to the designated areas;

- construction activities on transmission lines and pipelines are limited to daylight hours;
- all food-related trash items are being disposed of in appropriate containers and removed at least once a week from the site;
- deliberate feeding of wildlife is not occurring;
- firearms are not on the project site;
- pets are not on the project site; and
- rodenticide or herbicide is not used during project construction.

To ensure compliance with the CDFG Streambed Alteration Agreement (Notification), Biological monitors will conduct inspections to verify that:

- all work in streams is conducted when the work sites are dry;
- no woody perennial stream bank vegetation outside the work area is damaged or removed;
- the amount of fill placed within stream channels does not exceed the amount that naturally occurred prior to the start of work;
- water that returns to the stream is not silty or turbid, no silty water is discharged into the stream, and no turbid water is created within the stream;
- slopes draining toward the stream are stabilized to reduce erosion potential;
- staging and storage areas for equipment, material, fuel, lubricant, and solvent are located outside the stream;
- drip pans are used under motors, pumps, generators, compressors, and welders that are located within or adjacent to a stream;
- vehicles are moved away from the stream before refueling and lubricating;
- any substance that could be hazardous to aquatic life is prevented from contaminating the soil and/or entering the waters of the area;
- all spills are immediately cleaned up; and
- Low-flow channels, bed, and banks of streams are returned as nearly as possible to their original configuration and width.

7.2 Problem Resolution

Remediation of noncompliance issues will be discussed at the weekly project status meeting. The Designated Biologist, Biological Monitor, EHP/ECM, and EHP EPM will take every opportunity to discuss sensitive species biology and protection with contracting personnel.

7.3 Biological Compliance Monitoring Reporting

Weekly summaries of biological compliance activities will be prepared by the Designated Biologist. These reports will be assembled into the monthly monitoring reports. Weekly summaries will be submitted by the EHP/ECM for distribution to the CPM/CEC and trustee agencies. Copies will be maintained in the project office of the EHP/ECM and Designated Biologists.

One month after surface disturbing activities commence, the first monthly report will be prepared and submitted. Subsequent reports will be prepared every month thereafter. Monthly compliance reports will include:

- areas and activities monitored;
- incident reports and resolution of each reported situation;
- released animals and their locations; and
- construction and monitoring activities planned for the next month.

The Designated Biologist will prepare and submit an annual compliance report to the CEC for distribution to the other Resource Agencies 90 calendar days following the end of each federal fiscal year (the first report is due 12-30-01). In addition, the Designated Biologist will prepare and submit, within 45 calendar days of completion of the project, a post-construction compliance report. These reports will include the following information:

- dates of project construction;
- data concerning EHP success and deficiencies in meeting project mitigation measures, and an explanation of any failure to meet such measures;
- known occurrences of incidental take,
- the effects of construction activities on listed species habitats,
- the specific number of habitat acres disturbed,
- description of specific sensitive resources impacted (e.g., number of giant kangaroo rat precincts, San Joaquin kit fox dens, etc.); and
- description of monitoring of released and relocated animals.

7.4 Reporting Wildlife Injuries

Any employee who inadvertently kills or injures a San Joaquin kit fox, San Joaquin antelope squirrel, giant kangaroo rat, or blunt-nosed leopard lizard, or who finds any such animal either dead, injured, or entrapped is required to report the incident immediately to the Designated Biologist or Biological Monitor. In instances of entrapped listed animals, escape ramps or structures will be installed immediately to allow the subject animal(s) to escape unimpeded.

In the case of injured animals, the Designated Biologist or Biological Monitor will immediately notify CDFG, during regular business hours, Monday through Friday, at (209) 243-4017. For non-business hours, report to (800) 952-5400. Notification will include the date, time, location, and circumstances of the incident. The Designated Biologist or Biological Monitor will follow the instructions of CDFG for the care of the injured animal. As a condition of consultation prior to construction, an on-call veterinarian who can be contacted in the event an injured animal needs care will be designated.

In the case of dead threatened or endangered animals, the Designated Biologist or Biological Monitor will within 24 hours, notify USFWS and CDFG by phone or in person and will document initial notification in writing within two working days of finding any such animal(s). Notification will include the date, time, location, species, and circumstances of the incident. In the case of dead San Joaquin antelope squirrel (s), the Designated Biologist or Biological Monitor will, within 24 hours, notify CDFG by phone or in person and will document initial notification in writing within two working days of finding any such animal(s).

Any Blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, San Joaquin antelope squirrel, or San Joaquin kit fox found injured will be delivered to the CDFG or designated veterinarian immediately for care, analysis, or disposition. Dead threatened or endangered wildlife found in the construction area will be delivered to the CDFG.

8 CLEANUP AND RECLAMATION

Upon completion of construction, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads installed by the project, pipeline corridors, transmission line tower pad sites, and pulling areas, will be subject to post-construction cleanup and reclamation. The cleanup will consist of removal of all stakes, lath, flagging, fencing, barrels, cans, drums, accidental spills, and any other refuse generated by construction. Reclamation will consist of recontouring to natural lines and grades, recompaction of soil, spreading and grooming of topsoil, and distribution of mulch. Post-construction monitoring and reporting will also be conducted to assess actual impacts that occur during construction and to monitor the success of reclamation and other mitigation.

8.1 Cleanup

Although the construction area will be kept cleared of trash, food-related items, construction debris, and other litter during the entire construction period, a post-construction inspection and cleanup will be conducted. The Designated Biologist will accomplish the inspection within 15 days of construction in each construction area. All construction debris unneeded signs, and other trash and litter will be removed within 15 days after the inspection. The Designated Biologist will assure that the construction contractors will remove all stakes, lathes, flagging, fencing, and signs associated with protection areas and the construction contractor will be responsible for removing all other debris. Disposal of all debris will be at an approved waste facility.

8.2 Topsoil Salvage

During construction of temporary right-of-ways, pipeline corridors, and laydown areas, the top six inches of soil will be salvaged and stockpiled near the construction site. Stockpiled topsoil will be replaced over the disturbed areas after recontouring and recompaction occurs.

8.3 Recontouring, Recompaction

Areas subject to temporary ground disturbances (storage area, staging areas, temporary roads used, pipeline working areas, and pulling areas) will be recontoured as close to the original grade as possible without disrupting adjacent undisturbed areas. After recontouring, soils will be compacted, where necessary, to 80 percent of original compaction and salvaged topsoil will be spread. The soil will then be groomed with a Cultipak or sheep's-foot roller to provide surface microrelief. Recontouring and recompaction will occur within 30 days of completion of construction, unless it must be done earlier to allow for the release of threatened and endangered wildlife removed from the site.

8.4 Mulching and Revegetation

Mulching of disturbed areas will only be required on slopes greater than 25 percent. Mulch will consist of agricultural wheat straw certified to be free of noxious weeds by the Kern County Agricultural Commissioner.

Certified wheat straw mulch will be applied to slopes with a blower at a rate of two tons per acre and will be anchored with hydro mulch and punched with a mulch crimper on slopes of greater than 3:1. Mulching will occur within 30 days after construction in each construction area. However, to prevent the loss of topsoil, the Designated Biologist may require the immediate spreading of mulch on disturbed slopes greater than 25 percent whenever there is the threat of heavy rain. Similarly, the Designated Biologist may require the immediate placement of bales of straw around stockpiled topsoil before rains. Mulching and other erosion control measures are described in more detail in the SWPPP.

8.5 Reporting of Reclamation Activities

The Designated Biologist and Biological Monitor will develop a reclamation and revegetation plan 60 days after initiation of construction activities. This plan will be reviewed and approved by the trustee agencies. The plan will include:

- success criteria;
- sampling methodologies;
- annual reporting; and
- locations of reclamation activities.

Post reclamation and revegetation actions will be directed by the Designated Biologist and Biological Monitor. An inspection to check compliance with the reclamation plan will be conducted within 30 days of completion of reclamation activities and annually for 3 years afterwards. A post-reclamation compliance report that describes the general condition of the vegetation and soil in the reclaimed areas will be submitted 30 days after each of the annual surveys. The post-reclamation compliance report will include a description of the reclamation activities and when reclamation activities were conducted.

9 COMPENSATION

9.1 Acreage and Natural Communities Impacted

The estimated project disturbance to habitats that support sensitive species is listed in Table 4. The natural land in the project area is mostly valley saltbush scrub, nonnative grassland, and valley sink scrub

Construction of the transmission line and source water pipeline will cause some disturbance to land that has been conserved for the benefit of sensitive species, and for that land there is a higher standard for compensation.

BIOLOGICAL RESOURCES TABLE 4
Permanent and Temporary Surface Disturbance[1] (acres)

	Project Requirements[2]	Existing Permanent Disturbance[3]	New Permanent Disturbance[4]	New Temporary Disturbance[5]
Power Plant, Laydown, Access Rd	17.00	14.12	2.88	0.00
Gas Pipeline	1.80	1.80	0.00	0.07
Water Disposal Line	15.00	14.99	0.01	8.63
Water Supply Line	36.50	24.88	11.59	20.52
Transmission Line				
Route 1B	0.10	0.04	0.06	9.93
Variation 1B			0.04	22.61
Totals				
Route 1A	72.00	55.75	16.15	44.09
Route 1B	70.40	55.78	14.52	39.15
Variation 1B	NA	NA	14.50	51.83

[1] Based on a 12 acre power site; 5 acre laydown and access road; a gas pipeline length of 2,500 feet (Walsh 1999); 10,000 sq ft per power pole, including area required for 100 sq ft per pole and equipment parking, line pulling, and tensioning; 20-ft access road width, where necessary, to pole sites; and, 26 poles for line 1B, (not including poles placed in non-natural habitat).
[2] EHPP 1999a, AFC Table 3.8-2.
[3] EHPP 1999d, Response to CEC Data Request #34.
[4,5] EHPP 1999h, amended Walsh Tables 1 and 3.

Through the CEQA process the CEC and Elk Hills Power has reached agreement concerning compensation for the loss of habitat for sensitive species. Elk Hills Power has provided funds to the Center for Natural Lands Management (CNML) to the CNML can acquire and manage in perpetuity the compensation acres for the project. Based on the figures in Table 4 and concurrence for the USFWS and CDFG, Elk Hills Power has provide funds for the purchase of 98.1 acres of compensation lands in the Lokern Natural Area.

9.2 Measures Required During Operation & Maintenance

Once constructed, major impacts to biological resources are not expected from the operation and maintenance of the proposed power project. Pre-activity surveys will be required when O&M activities having the potential to impact sensitive species are planned. Appropriate avoidance measures will be carried out to protect sensitive biological resources discovered during the pre-activity surveys.

O&M operation activities shall include, but are not limited to, the following: maintenance of existing pipelines and their testing, maintenance of bird diverters, weed control of terminals etc. O&M does not include new construction activities. No take of sensitive species will be allowed during O&M operations.

9.3 Measures Required During Ongoing Project Operation

The Plant Manager will be responsible for ensuring that:

- New personnel to the power plant or contractors that have not received training regarding sensitive biological resources in the project vicinity will be trained within 15 days of arrival on the job site. In addition, all workers will receive training in sensitive biological resources annually. Upon completion of the training, employees will sign a form stating that they attended the program and understand all project related mitigation measures. These forms will be filed at EHP offices and will be accessible to USFWS and CDFG.
- All food-related trash items are being disposed of in closed containers and removed at least once a week from the site.
- Deliberate feeding of wildlife is not occurring.
- No firearms are on the project site.
- No pets are on the project site.
- Rodenticide and herbicide use is according to label restrictions and other restrictions imposed by the U.S. Environmental Protection Agency, the California Department of Food and Agriculture, and other State and Federal legislation, and the additional project-related restrictions deemed necessary by USFWS. If rodent control must be conducted, zinc phosphide will be used because of proven lower risk to kit foxes.
- During inspection of facilities, project-related vehicles will observe a 10-MPH speed limit in areas with any blunt-nosed leopard lizards and/or high populations of San Joaquin antelope squirrels. A 25-MPH speed limit will be observed in all other project areas except on county roads and State and Federal highways.

The 2081 does not cover Operations and Maintenance nor construction activities outside the original planned facility. Typical operation and maintenance activities associated with the power plant that could effect sensitive species or their habitat would

include:

- Inspection of transmission lines
- Inspection of fresh and waste water lines
- Maintenance of injection wells
- Maintenance of bird flight diverters
- Weed control

The above listed maintenance activities can be accomplished using appropriate impact avoidance measures and the mitigation measures included in this BRMIMP, the Section 7 and 2081 without requiring re-initiation of consultation with the CDFG. It is recommended that the CDFG be consulted prior to any major new construction associated with the operation and maintenance of the power plant or the associated linear facilities.

9.4 Measures Required During Surface-Disturbing Maintenance

When surface-disturbing activities are proposed, a qualified biologist (see qualifications for the Environmental Inspector) will conduct pre-activity surveys in the proposed disturbance area and a 500-foot buffer zone around the proposed disturbance. Avoidance areas will be established using the criteria described in this BRMIMP. The biologist will assess the need for compliance monitoring, if such monitoring is necessary.

9.5 Record Keeping

The frequency and record keeping standards described for project construction activities will also be followed for maintaining employee training records, pre-activity survey reports, and environmental compliance reports during operations.

9.6 Facility Closure

Facility closure plans will be developed to address the planned permanent or unexpected permanent closure of the power plant and associated facilities. These plans will address the local biological resources issues and impact mitigation measures to be implemented during each type of power plant closure

The closure plan for **planned permanent closure** of the power plant will include:

- Removal of transmission conductors and above ground pipelines when they are no longer used and useful.

- Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species.
- Any special measures that will be implemented in the Elk Hills Conservation Area.
- Identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site.
- Identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project.
- Identify all facilities and equipment that will a) be immediately removed from the site after closure (e.g. hazardous materials); b) temporarily remain on the site after closure (e.g., until the item is sold or scraped; and c) permanently remain on the site after closure. The plan must explain both why the item cannot be removed and why it does not present a risk of harm to the environment and the public health and safety to remain *in situ* for an indefinite period.
- Address conformance of the plan with all-applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.
- Prior to submittal of the proposed facility closure plan, a meeting shall be held between the project and the CPM for the purpose of discussion the specific contents of the plan.
- To insure adequate review of the planned project closure, the project owner shall submit the facility closure plan to the CEC for review and approval at least 12) months (or mutually agreed upon time prior to commencement of closure activities.

Unexpected permanent closure will be addressed in the on-site contingency plan for unexpected temporary closure.

Unexpected temporary closure will not be addressed in the BRMIMP, although it will be addressed in the on-site contingency plan for unexpected temporary closure.

GLOSSARY

ACOE – Army Corps of Engineers

ACSR – Aluminum conductor, steel reinforced

AFC – California Energy Commission Application for Certification

BLM – Bureau of Land Management

BRMIMP – Biological Resources Mitigation and Implementation Monitoring Plan

CDFG – California Department of Fish and Game

CDWR – California Department of Water Resources

CEC – California Energy Commission

CPM/CEC – California Energy Commission appointed construction project manager assigned to the Elk Hills power plant project.

EHP – Elk Hills Power, L.L.C.

EHP/ECM – EHP Environmental Compliance Monitor

EHP/EPM – EHP Environmental Permitting Manager

EHPP – Elk Hills Power Project

GIS – Geographic Information System

GPS – Global Positioning System

OEHI – Occidental of Elk Hills, Inc

O&M – Operation and Maintenance

RWQCB – Regional Water Quality Control Board

SJVUAPCD – San Joaquin Valley Unified Air Pollution Control District

SWPPP – Storm Water Pollution and Prevention Plan

USFWS – United States Fish and Wildlife Service

WKWD – West Kern Water District

Appendix 1. Duration, methodology, and frequency of monitoring activity.

Species	Construction	O & M	Duration of Monitoring	Monitoring Activity	Methodology	Frequency	Reporting
Blunt-nosed leopard lizard	X	X	• April 15 to June 30 • August 1 to Sept. 15 in areas known to be occupied by BNLL. • Entire project	Pre-activity survey, Monitoring during construction	BRMIMP Section 6.8.1	When needed during ground disturbing activities	Weekly Monthly Annually
Tipton kangaroo rat	X	X	• Pre-construction • Trapping 3 nights prior to construction in project areas east of the Aqueduct. • Entire Project	Pre-activity survey, Monitoring during construction, Trapping and relocation Excavation of burrows	BRMIMP Section 6.8.2.	When needed during ground disturbing activities	Weekly Monthly Annually
San Joaquin kit fox	X	X	• Entire project	Pre-activity survey and Monitoring during construction Den excavations No surface disturbing activities with in 1,320 ft. of occupied natal den	BRMIMP Section 6.8.4	When needed during ground disturbing activities	Weekly Monthly Annually
Giant kangaroo rat	X	X	• Pre-construction • Trapping 3 nights prior to construction. • Trapping in areas where "sign" found • Entire Project	Pre-activity survey and Monitoring during construction Trapping and relocation Excavation of burrows	BRMIMP Section 6.8.3	When needed during ground disturbing activities	Weekly Monthly Annually
San Joaquin antelope squirrels	X	X	• April – June Trapping areas with previous sign • 3 nights min.	Entire project	BRMIMP Section 6.8.4	During ground disturbing activities	Weekly Monthly Annually

TERMS AND CONDITIONS OF THE CESA INCIDENTAL TAKE PERMIT

The Department's issuance of this Permit and Permittee's authorization to take the Covered Species is subject to Permittee's compliance with and implementation of the following conditions of approval:

1. Permittee shall comply with all applicable state, federal and local laws in existence on the effective date of this Permit or adopted thereafter.

2. Permittee shall fully implement and adhere to the conditions of certification for biological resources (BIO-1 through BIO-10) adopted by the California Energy Commission (CEC) as part of its order dated December 6,2000. These conditions include but are not limited to measures to avoid and minimize take of Covered Species and to acquire and permanently protect habitat for covered species and are reproduced in Attachment A.

3. Permittee shall comply with the requirements of either paragraph 3(a) and paragraph 3(b) as follows:

   (a) Permittee shall execute and deliver to the Department conservation easements over the compensation habitat purchased to provided funds to the Center for Natural Lands Management (CNLM) to be used to purchase the required compensation habitat in the immediate vicinity of the CNLM Lokern Preserve within the Lokern Natural Area of western Kern County pursuant to CEC Condition of Certification BIO-9. CNLM's purchase of the habitat is governed by the Memorandum of Understanding between CNLM and CEC regarding Management of Habitat and endowment funds, dated May 22, 2000. These easements shall be approved by the Department and the CNLM. Permittee shall also provide all documents and reports required by the Department to process the easements and shall pay costs associated with processing and recording of the conservation easements, including but not limited to reimbursement of costs incurred by the Department during its review and processing of the easements. All conservation easements must be approved by the Department and recorded before title to the property is transferred to CNLM. Compensation acreage funding the purchase of approximately 136 acres was calculated based on the following ratios:

   3.0 acres for each acre of habitat permanently disturbed (private lands)
   1.1 acres for each acre of habitat temporarily disturbed (private lands)
   4.0 acres for each acre of habitat permanently disturbed (conserved lands)
   2.1 acres for each acre of habitat temporarily disturbed (conserved lands)

   The Project is expected to result in (at maximum) 13.19 acres of disturbance to private land, 43.74 acres of temporary disturbance to private lands, 3.08 acres of permanent disturbance to preserved lands and 8.09 acres of temporary disturbance to conserved lands.

(b) Prior to transferring compensation habitat or providing funds to CNLM for acquisition of habitat pursuant to CEC conditions, Permittee shall execute an agreement with CNLM that legally binds CNLM to execute and deliver to the Department conservation easements acceptable to the Department over the compensation habitat and deliver any documents and reports required by the Department to process the easements. The agreement shall require delivery of executed conservation easements and related documents and reports no more than 60 days after the Permittee has transferred title to CNLM, or CNLM has purchased land with money provided by Permittee. Permittee shall pay costs associated with processing and recording of the conservation easements, including but not limited to reimbursement of costs incurred by the Department during its review and processing of the easements.

4. Permitting shall comply with all take avoidance, mitigation, monitoring and reporting requirements in the CEC's Draft Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), as may be amended with the Department's approval, and shall also comply with the Department's Mitigation Monitoring and Reporting Program (Attachment B), except that the following requirements shall be complied with regardless of future approved amendments to the BRMIMP:

    a. Annual reports and final post-construction compliance report shall be provided to the Department.

    b. To ensure compliance with Section 2081(b)(4) of the Fish and Game Code, Permittee shall include in its annual and post-construction compliance reports an analysis of mitigation measures in minimizing and mitigating the incidence take of Covered Species and recommendations, if any, on how measures may be made more effective for this Project or future projects.

    c. The final BRMIMP and all amendments to the BRMIMP must be approved in writing by the Department. Proposed amendments shall be submitted to the San Joaquin Valley Southern Sierra Region Staff for review.

5. Security is not required because the CEC has required that the Permittee acquire and transfer all habitat lands or provide funds to CNLM to acquire habitat lands prior to commencement of ground disturbing activity, and the CEC's compliance program will ensure that the Permittee performs the required monitoring and reporting for the term of the project.

6. This Permit may be amended without the concurrence of the Permittee if, after consultation with CEC staff, the Department determines that continued implementation of the Project under existing Permit terms and conditions would jeopardize the continued existence of a Covered Species or that changed biological

conditions necessitate a Permit amendment to ensure that impacts to the Covered Species are minimized and fully mitigated.

7. The Department may issue Permittee with a written stop work order to suspend any activity covered by this Permit for an initial period of up to 25 days to prevent a violation of this Permit or the illegal take of an endangered, threatened or candidate species. Permittee shall comply with the stop work order immediately upon receipt thereof. The Department may extend a stop work order under this provision not to exceed 25 additional days, upon written notice to the Permittee. The Department shall commence the formal suspension process pursuant to California Code of Regulations, Title 14, section 783.7 within five working days of issuing a stop work order.

Notices: Written notices, reports and other communications relating to this Permit shall be delivered to the Department by first class mail at the following addresses, or at addresses the Department may subsequently provide the Permittee.

Original to: Regional Manager
San Joaquin Valley and Southern Sierra Region
1234 Shaw Avenue
Fresno, CA 93710

Copy to: General Counsel
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Compliance with the California Environmental Quality Act: The Department's issuance of an Incidental Take Permit is a "Project" subject to the California Environmental Quality Act, Public Resources Code, section 21000, et seq. ("CEQA"). The Department is acting as a responsible agency under CEQA in issuing this Permit.

As the lead agency under CEQA the CEC has evaluated environmental impacts of the Project for certification. The CEC certification process is a certified regulatory program under CEQA and the CEC's environmental analyses are the functional equivalent of an environmental impact report. The CEC found that the Project, with mitigation measures incorporated by the Permittee, would not have a significant effect on the environment. The CEC's analysis for the Project is located at the following address:

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814
(916) 654-4489

The Department is acting as a "Responsible Agency" under CEQA in issuing this Permit. Section 15096(a) of the CEQA Guidelines states that "A responsible agency complies

with CEQA by considering the EIR or negative declaration prepared by the lead agency and by reaching its own conclusion on whether or how to approve the Project involved." Section 15096(g)(1) of the CEQA Guidelines further states that "A responsible agency has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the Project which it decides to carry out, finance, or approve." In issuing the Permit, therefore, CEQA required the Department to review the lead agency's document for the Project and to ensure that the direct and indirect environmental effects approved or authorized in the Permit for the Project will be adequately mitigated or avoided. As stated in the CESA findings, below, the Department has determined that all impacts of taking Covered Species from Project activities are minimized and fully mitigated under the conditions of approval of this Permit.

Section 2081 of CESA states, in pertinent part:

(b) The Department may authorize, by Permit, the take of endangered species, threatened species, and candidate species if all of the following conditions are met:

(1) The take is incidental to an otherwise lawful activity.

(2) The impacts of the authorized take shall be minimized and fully mitigated. The measures required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required shall maintain the Applicant's objectives to the greatest extent possible. All required measures shall be capable of successful implementation. For purposes of this section only, impacts of taking include all impacts of the species that result from any act that would cause the proposed taking.

(3) The Permit is consistent with any regulations adopted pursuant to sections 2112 and 2114.

(4) The Applicant shall ensure adequate funding to implement the measures required by paragraph (2) and for monitoring compliance with, and effectiveness of, those measures.

(c) No Permit may be issued pursuant to subdivision (b) if issuance of the Permit would jeopardize the continued existence of the species. The department shall make this determination based on the best scientific and other information that is reasonably available, and shall included consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (1) known population trends; (2) known threats to the species; and (3) reasonably foreseeable impacts on the species from other related projects and activities.

These CESA provisions constitute the criteria for the issuance of an Incidental Take Permit. The Department finds that these criteria are met for the issuance of an Incidental Take Permit to Permittee as follows:

1. The take of Covered Species as defined in the Incidental Take Permit will be incidental to otherwise lawful Project activities.

2. The impacts of take of Covered Species will be minimized and fully mitigated through implementation of measures that are required as Permit conditions of approval.

3. The minimization and mitigation measures required in the Incidental Take Permit are roughly proportional in extent to the Project's impact of taking Covered Species.

4. The required minimization and mitigation measures will maintain the Permittee's Project objectives to the greatest possible extent.

5. All required measures in the Incidental Take Permit are capable of successful implementation.

6. The Incidental Take Permit is consistent with any regulations adopted pursuant to sections 2112 and 2114 of the Fish and Game Code.

7. The Permittee has been required to ensure adequate funding to implement the required minimization and mitigation measu4es, and for monitoring compliance with, and the effectiveness of those measures.

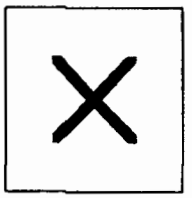
8. Issuance of this Incidental Take Permit will not jeopardize the continued existence of any Covered Species. The Department's finding is based on the best information that is reasonable available, and includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (a) known population trends; (b) known threats to the species; and (c) reasonably foreseeable impacts on the species from other related project and activities. The Department's finding is further based on the Department's express authority to revise the terms and provisions of the Incidental Take Permit as necessary to avoid jeopardy.

ATTACHMENT 4

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-00-F-0022



January 17, 2001

Memorandum

To: Field Office Manager, U.S. Bureau of land Management, Bakersfield Field Office, Bakersfield, California

From: Acting Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Formal Section 7 Consultation on the Elk Hills Power Project, Kern County, California

This is in response to the Bureau of Land Management (BLM) December 10, 1999, request for formal consultation with the U.S. Fish and Wildlife Service (Service), on the proposed Elk Hills Power Project in Kern County, California. Your request was received in our office on December 13, 1999. The U.S. Environmental Protection Agency (EPA) has asked BLM to be the lead agency for them under the Endangered Species Act of 1973 (Act), as amended. BLM and EPA propose to authorize Elk Hills Power LLC. (Elk Hills Power), a joint venture between Occidental Energy Ventures Corporation and Sempra Energy, to construct and operate the following facilities:

- a 500-megawatt natural gas-fired combined cycle power plant
- a 230 kilovolt (kV) switch yard
- 8.6 to 9.0-miles of 230 kV power transmission line from the Elk Hills Power Project to the Pacific Gas and Electric Company (PG&E) Midway Substation
- 9.8 miles of 16-inch water supply pipeline to connect to the West Kern Water District water supply
- disposal injection wells and 4.4 miles of pipe to those injection wells along an existing right of way
- 0.5 miles of 10-inch diameter natural gas pipeline to interconnect to Occidental of Elk Hills Inc. (OEHI) existing main natural gas pipeline.

The power plant is to be located on private lands in Kern County, California about 25 miles west of Bakersfield, 9 miles south of the unincorporated community of Buttonwillow, and 9 miles north of Taft. The 12-acre site is a part of the 47,000 acre Elk Hills Oil and Gas Field operated by OEHI, formerly the Elk Hills Naval Petroleum Reserve Number 1. The site is currently occupied by out-of-service tanks and related equipment formerly used for the storage and loading of propane, butane, and natural gas liquid products. The water supply line crosses private and Federal lands administered by the BLM. The EPA will issue a Prevention of Significant Deterioration (PSD) air permit for the project under the Clean Air Act. BLM is the lead agency in this formal consultation.

This project is a combined cycle plant that produces both steam and electricity from the process of burning natural gas. The steam produced in the plant will be used to generate additional electricity, and will not be used in the oil or gas fields.

This document represents the Service's biological opinion on the effects of the action on the following federally-listed animal species:

San Joaquin kit fox, *Vulpes macrotis mutica* (endangered)
giant kangaroo rat, *Dipodomys ingens* (endangered)
Tipton kangaroo rat, *Dipodomys nitratoides nitratoides* (endangered)
California condor, *Gymnogyps californianus* (endangered)
blunt-nosed leopard lizard, *Gambelia sila* (endangered)

and the following federally-listed plant species:

Hoover's eriastrum, *Eriastrum hooveri* (threatened)

in accordance with section 7 of the Act.

The Service has determined that this project is not likely to adversely affect longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi)*, mountain plover (*Charadrius montanus*), Kern mallow (*Eremalche kernensis)*, or San Joaquin woolly-threads (*Lembertia congdonii)*. Habitat within the project footprint does not support these species. If occupied habitat of any of these species is discovered during pre-activity surveys, Elk Hills Power must either avoid the habitat per their project description, or obtain incidental take authorization pursuant to reinitiation of this section 7 consultation through the BLM. Unless new information indicates that the action will affect these species in a way not considered, no further consultation under the Act is necessary. If new information comes to light that indicates the action may affect them, please contact us immediately.

Critical habitat has been designated for the California condor in Kern County. This project, however, does not occur within Condor critical habitat.

This biological opinion is based on information provided in the following sources:

- February 26, 1999, Application for Certification (AFC)(Elk Hills Power 1999*a*) submitted to the California Energy Commission (CEC) and subsequent Addendums and Responses to CEC staff data requests too numerous to list here (Elk Hills Power 1999*b*, 1999*d*);
- the December 1999 Biological Assessment prepared by Quad Knopf, with modifications by the BLM (BLM and Quad Knopf 1999).
- the December 10, 1999, letter requesting formal consultation letter from the Bureau of Land Management (BLM 1999) and subsequent amendment by electronic mail to include the U.S. EPA in the consultation;
- the revisions to the project description as provided in the CEC Final Staff Assessment (CEC 2000);
- the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), dated August 26, 1999 (Elk Hills Power 1999*c*),
- telephone conversations with Nahid Zoueshtiagh, concerning EPA air permits,
- telephone conversations with Linda Spiegel of the CEC concerning project description and biology;
- telephone conversations with Rich Texier of Adams Broadwell Joseph & Cardozo, representing California Unions for Reliable Energy (CURE);
- field investigations; and
- other sources of information.

A complete administrative record of this consultation is on file in this office.

Consultation History

The following list summarizes the important meetings and documents received from the applicant and from the CEC as part of the California Environmental Quality Act (CEQA) review of the project:

January 14, 1999. The Service met with representatives of Occidental Energy Ventures Corporation and Occidental Petroleum, who introduced the project.

February 26, 1999. The Service received the AFC submitted to the CEC.

August 31, 1999. The Service met with Occidental Petroleum and Occidental Energy Ventures Corporation concerning the project schedule.

September 8, 1999. The Service participated in a visit to the proposed plant site with CEC and others.

December 10, 1999. The BLM sent a letter and a Draft Biological Assessment in order to initiate formal consultation.

January 5, 2000. The CEC distributed Part 1 of 3 of the Final Staff Assessment containing a project description and other pertinent information.

February 17, 2000. The BLM amended their initiation letter to include the EPA as a co-initiator of consultation.

February 18, 2000. The CEC distributed Part 2 of 3 of the Final Staff Assessment, containing CEQA analysis of biological impacts.

April 28, 2000. The CEC distributed Part 3 of 3 of the Final Staff Assessment, containing CEQA analysis of air quality impacts and alternatives analysis.
October 26, 2000. Service staff attended a CEC Evidentiary Hearing on the Elk Hills Power Project.

January 16, 2001. The Service issued a draft Biological Opinion to BLM and EPA.

January 17, 2001. EPA asked to be removed as a co-initiator, and asked that BLM be the lead agency for them under the Act. The Service complied.

BIOLOGICAL OPINION

Description of the Proposed Action

Descriptions of the project are found in the AFC, the Biological Assessment, the Final Staff Assessments by the CEC. The components of the project that relate to potential impacts to biological resources are described below. The general locations of most project components are shown on Figure 1. The project is divided here into two parts; (1) the power plant and supporting facilities, and (2) the transmission line.

Power Plant and Supporting Facilities

The Elk Hills Power Project plant site is located on approximately 12 acres within the 47,000 acre Elk Hills Oil and Gas Field operated by OEHI. The power plant and supporting facilities will consist of the following:

- a 500-megawatt natural gas-fired combined cycle power plant
- a 230 kV switch yard

- 9.8 miles of 16-inch water supply pipeline to connect to the West Kern Water District water supply, and a new pump station at the West Kern Water District facility
- disposal injection wells and 4.4 miles of pipe to those injection wells along an existing Right of Way
- 0.5 miles of 10-inch diameter natural gas pipeline to interconnect to OEHI's existing main natural gas pipeline
- 8.6 to 9.0-miles of 230 kV power transmission line from the Elk Hills Power Project to the Pacific Gas and Electric Company (PG&E) Midway Substation, and expansion of the Midway Substation by PG&E to accommodate Elk Hills Power

The plant site is located in Township 30 South, Range 23 East in the northeast portion of Section 35. The proposed location has readily available access for incoming natural gas supply lines and outgoing electrical transmission lines. The site is currently occupied by out-of-service tanks and related equipment formerly used for the storage and loading of propane, butane, and natural gas liquid products. The water line crosses private and Federal lands administered by the BLM. The power plant, access road, laydown area, and warehouse will require 17.0 acres of land, of which approximately 14.12 acres are disturbed by previous grading or are occupied by storage tanks and related equipment. The remaining 2.88 acres that will be permanently disturbed supports valley saltbush habitat. Seventy-nine known or potential kit fox dens and were identified on the plant site and in the area surveyed around the plant site (CEC 2000).

Water Supply. The West Kern Water District will supply water to the Elk Hills Power Plant. One 9.8-mile 16-inch water supply pipeline will be constructed to connect the plant with West Kern Water District mains east of the plant site, as shown on Figure 1. The water pipeline will be laid above ground, on pipe supports and adjacent to existing roads, for 5.7 miles beginning from the power plant site. The water supply pipeline will run below ground the remaining 4.1 miles. Most of the route traverses valley saltbush habitat. The water supply pipeline crosses 0.5 mile of BLM land, and 0.7 mile of the Coles Levee Ecosystem Preserve. A new pumping station will be located near the existing West Kern Water District facility. Compensation for construction of this facility will be provided at the Kern Water Bank under their Master Permit. Species identified along this survey route include 189 kit fox dens, including 4 known dens; 14 San Joaquin antelope squirrels, and one short-nosed kangaroo rat sighting. Plants found along the route include 148 stands of Hoover's eriastrum, 20 stands of heartscale atriplex, six stands of Lost Hills crownscale, and one stand of oil nest straw. The West Kern Water District has adequate water quantity to meet the project's needs (CEC 2000).

Project Wastewater Lines. The 4.4-mile long 8-inch wastewater disposal pipeline will be installed above ground along the edge of existing roads adjacent to valley saltbush habitat. This pipeline will terminate into two new injection wells located in disturbed habitat. Species found along this survey route were 42 potential kit fox dens, one blunt-nosed leopard lizard, 38 stands of Hoover's eriastrum, three stands each of heartscale atriplex and Lost Hills crownscale, and one stand of oil nest straw (CEC 2000).

Fuel Supply. The Elk Hills Power Plant will operate exclusively on natural gas. A 2,500-foot long, 10-inch natural gas pipeline will be installed from an existing gas processing facility. The pipeline route follows an existing pipeline corridor. Four potential kit fox dens and one stand of gypsum-loving larkspur were found along the pipeline route (CEC 2000). No alternative gas supply is deemed necessary.

Site Access Road. The Elk Hills Power Plant will be accessed from existing roads within the Elk Hills Oil and Gas Field. During construction a 40-foot wide 135-foot long temporary road will be used to access the site from Elk Hills Road. A 20-foot wide, paved, loop road will provide access to facilities on the power plant site. Project site disturbances for the access roads are included in the site disturbance estimates.

Estimated disturbances associated with the proposed power plant (not including the transmission lines) will all occur on private lands. Elk Hills Power estimates that 14.62 acres of habitat will be permanently disturbed and 39.15 acres of habitat will be temporarily disturbed by building the power plant and substation; installing the water, wastewater, and natural gas pipelines; and by improving the access roads. ***The Midway Substation expansion is expected to result in 4.5 acres of permanent habitat disturbance and 0.3 acres of temporary habitat disturbance.***

Transmission Line

The proposed transmission line corridor is 8.6 miles long, and is labeled "T-L (Route 1B)" on Figure 1. A 230 kV transmission line will be constructed to interconnect the Elk Hills Power Plant to the California electric transmission grid at PG&E's Midway Substation. The Midway Substation will be expanded to accommodate the additional power from the Elk Hills Power Plant. CEC staff have included the substation expansion in their review and analysis of the Elk Hills Power Project. ~~The substation expansion will occur in an area that has already been disturbed as part of the construction of the existing substation. No take will occur as a result of the substation expansion.~~

The line will be supported on single-shaft tubular steel poles that are 100 to 130 feet in height (BLM and Quad 1999). The route extends north for two miles from the plant site, and then continues 3 miles northeast to the boundary of the Elk Hills Oil and Gas Field, and then extends another 3.6 miles to the Midway Substation in Buttonwillow. The first 5 miles of the route are in valley saltbush habitat. The remaining 3.6 miles will replace an existing 11 kV line that travels along the shoulder of existing paved roads or through lands developed for agriculture. Approximately 1.4 miles of this line crosses the OEHI Conservation Area. Approximately 0.5 mile crosses the Kern River Flood Plain. This same 0.5 mile is within the Lokern Natural Area. However, it is not within any currently protected lands. Species observed along this survey route include 97 potential kit fox dens, two short-nosed kangaroo rats, six San Joaquin antelope squirrel sightings, 71 stands of Hoover's eriastrum, and one stand each of oil nest straw and hollisteria (CEC 2000). ***Surveys conduced at the Midway Substation expansion by M.H. Wolfe and Associates on June 4, 2001 located one potential kit fox burrow and 3 Tipton kangaroo rats (David Germano, Ph.D. pers. comm.).***

Elk Hills Power has agreed to install bird flight diverters on the ground wire on the tops of the poles, to manufacturer's specifications, in order to make the lines more visible to condors so that they can avoid collisions. The diverters will be installed on the entire line from the Elk Hills Power Plant to the PG&E Midway Substation (Champion 2000 personal communication).

Biological Survey Methodology

Biological surveys for the Elk Hills Power Plant project were conducted during November and December 1998, and in April of 1999. Results are available in the AFC and Supplemental Filings (Elk Hills Power 1999*a*, *b*). The areas surveyed include a 1.0-mile radius around the power plant site, a 2,200-foot corridor along two transmission line routes, and a 1,000-foot corridor along the pipeline routes. Maps and tables of existing land disturbances are provided in Elk Hills Power' Response to energy Commission Staff's Data Request #34 (Elk Hills Power 1999*d*). A list of the species targeted during the surveys is presented in Table 1. During the survey, all dens, burrows, and other evidence of special status species were noted.

It is not clear that the surveys were conducted within the acceptable survey dates and temperatures for blunt-nosed lizard (CDFG 1990). Temperatures were known to be generally below the optimum for this species to be active. Elk Hills Power has stated that additional surveys will be conducted to determine where blunt-nosed leopard lizards might be. Surveys will follow California Department of Fish and Game protocol (CEC 2000).

The San Joaquin kit fox dens were classified according to the Service kit fox den definitions (Service 1999):

- Known Den: Any existing natural den or man-made structure for which conclusive evidence or strong circumstantial evidence can show that the den is used or has been used at any time in the past by San Joaquin kit fox.

- Potential Den: Any natural den or burrow within the range of the species that has entrances of appropriate dimensions (4 to 12 inches in diameter) to accommodate San Joaquin kit foxes for which, however, there is little to no evidence of kit fox use.

- Pupping Den: Any known San Joaquin kit fox den (as defined) used by kit foxes to whelp and/or rear their pups.

- Atypical Den: Any known San Joaquin kit fox den that has been established in, or in association with, a man-made structure.

Survey Results

This section describes the existing conditions of listed biological resources in the Elk Hills Power Plant project area. The results of these surveys are summarized below. The Biological Assessment, Section II, describes habitat types in the area of the Elk Hills Power Plant following Holland (1986).

Waters of the U.S.. Several irrigation canals are located within and adjacent to agricultural areas along the transmission route. All of these areas contain water on a seasonal basis. The canals are virtually unvegetated, and will not be impacted by project activities. The proposed transmission line will cross the California Aqueduct and Kern River Flood Canal.

Sensitive Plants and Animals. The following plants and animals were found at or near the Elk Hills Power Plant and associated utility corridors:

loggerhead shrike	San Joaquin kit fox	gypsum-loving larkspur
great-horned owl	bobcat	Hoover's eriastrum
barn owl	badger	heartscale atriplex
burrowing owl	short-nosed kangaroo rat	Lost Hills crownscale
short-eared owl	hollisteria	oil nest straw

The sensitive species or sign of sensitive species that were found during surveys of the power plant location and utility corridors are presented in Table 2.

In addition to the sensitive plants and animals found at or near the Elk Hills Power Plant and associated utility corridors, Tipton kangaroo rats were located during surveys of the Midway Substation expansion site conducted June 14, 2001.

Permanent and Temporary Surface Disturbance

Table 3 describes the sensitive species or sign of sensitive species that were found on the ground that will be temporarily or permanently disturbed by the project. Table 4, taken from the CEC Final Staff Assessment (CEC 2000), summarizes the temporary and permanent impacts of the project in acres for each element of the power plant project. These estimates are based on an expected disturbance of 10,000 square feet for each transmission pole, which includes a 100 square foot area per pole, equipment parking, line pulling, line tensioning, 20-foot access road width to pole sites, and 26 poles for transmission line Route B.

Of the acres detailed in Table 4, 3.08 acres of disturbance will occur in an existing conservation area, and 8.09 acres of temporary disturbance will occur in existing conservation areas. These conservation areas include the Elk Hills Conservation Area and the Coles Levee Preserve. The transmission line will cross 1.4 miles of the Elk Hills Conservation Area and 0.5 mile of the Lokern Natural Area. The water supply line will cross 0.5 miles of BLM land and 0.7 mile of the Coles Levee Ecosystem Preserve.

In addition to the data provided in the above referenced tables, the final constructed dimensions of the Midway Substation expansion will be approximately 415 feet by 450 feet, and will permanently disturb a total 4.5 acres. In addition, 0.3 acres will be temporarily disturbed for equipment turn around and fence installation. Construction of the expansion will be accomplished with the use of conventional construction equipment. The types of equipment that may be used on the project site include, but are not limited to the following: backhoes, bulldozers, graders, earthmovers, dump trucks, delivery trucks and cranes. Elk Hills Power contractor is responsible for the Project site grading, while the installation of the new substation facilities is to be completed by PG&E under the approved Generator Special Facilities Agreement (GSFA) executed between Elk Hills Power and PG&E. PG&E will own and operate the Midway Substation expansion facility upon its completion. This work is scheduled to begin in July 2001 and to be complete in December 2001 to support Elk Hills Power's simple cycle operation.

Proposed Conservation Measures

Elk Hills Power has proposed measures to avoid or reduce impacts to biological resources. Elk Hills Power will develop a Biological Resources Mitigation Implementation and Monitoring Plan as part of the power plant licensing and CEQA-equivalent review conducted by the California Energy Commission. A final BRMIMP that addresses all requirements in this Biological Opinion and CEC and CDFG requirements will be provided prior to the start of any construction activities.

Elk Hills Power has agreed to do the following to minimize impacts:

- avoid sensitive resources to the extent practicable
  design transmission lines to reduce risk of avian electrocution
  install of bird flight diverters
  implement a worker environmental awareness training program
  conduct pre-construction surveys
  establish buffer/avoidance zones around sensitive resources
  excavate kit fox dens and giant kangaroo rat burrows that will not be avoided
  identify and mark construction area boundaries
  restrict project-related vehicle traffic to established roads, designated temporary access roads, and parking areas
  provide a qualified biologist on site to monitor construction activities
  confine parking and equipment storage to laydown areas
  cap pipes 4-inch or greater in diameter when not in use, and visually inspect pipes for wildlife before use
  limit construction activities along pipelines and transmission lines to daylight hours
  cover and/or provide escape ramps to open trenches more than 2-feet deep
  conserve 4 inches of topsoil in temporary construction areas. Re-contour and spread topsoil over all areas temporarily disturbed by construction activities.

- Dispose of trash in closed containers and prohibit feeding wildlife.
  Prohibit domestic pets on site.
  Notify the Service and CDFG if a species of concern is injured or killed.
  Submit a post construction compliance report 60 days after completion of the project.
  Acquire compensation lands for habitat disturbance.

Through the CEQA process the CEC and Elk Hills Power have reached agreement concerning compensation for the loss of habitat for sensitive species. Elk Hills Power has agreed to provide compensation funds to the Center for Natural Lands Management (CNLM) so that CNLM can acquire and manage in perpetuity the compensation acres for this project. The following ratios of habitat to be acquired versus habitat being lost were provided to CEC by the Service, and used by CEC and Elk Hills Power:

Permanent impacts to conserved land	4.0:1
Permanent impacts to other private land	3.0:1
Temporary impacts to conserved land	2.1:1
Temporary impacts to other private land	1.1:1

Recovery Task 2.1.4 in the Recovery Plan for Upland Species of the San Joaquin Valley, California (Valley Recovery Plan)(Service 1998*a*) calls for preservation of public and private land in Western Kern County, including the Lokern Area. The proposed compensation lands for this project conform with the Valley Recovery Plan recovery task.

Table 5 presents the calculation for compensation acres required for the project. Based on the CEC Final Staff Assessment (CEC 2000), the Service finds that temporary and permanent impacts from the project will require 98.1 acres of compensation land. Elk Hills Power has agreed to provide funds to the Center for Natural Lands Management (CNLM) to buy high quality habitat, that supports the same species found at the Elk Hills Power project site, near the existing CNLM Lokern Preserve located within the Lokern Natural Area, approximately 9 miles north of the proposed power plant site.

For the expansion of the Midway Substation the BLM also proposes that Elk Hills Power provide an additional 13.83 acres of compensation lands to their existing requirement as a project mitigation measure. The CEC estimated that the construction of the Elk Hills Power Plant would require 98.095 to 111.98 acres of habitat to offset impacts related to construction of the power plant. Elk Hills Power purchased habitat conservation credits in excess (a total of 155 acres) of what would be required for the construction of the project. A total of 43 to 56 acres of compensation lands remain. In agreement with the BLM, Elk Hills Power will designate 13.83 acres from the 43 to 56 extra compensation acres purchased for the project to mitigate disturbance form the substation expansion.

Status of the Species

The entire ranges of the species being addressed in this opinion are described, as they were known historically, and as they occur today. The major threats to the species are noted. The reader is directed to the Recovery Plan for Upland Species of the San Joaquin Valley, California (Service 1998*a*) for further information on taxonomy, ecology, and biology of most species described here. Federally threatened and endangered animals are addressed first, with species accounts for listed plants presented second.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Listing and Recovery. The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 **FR** 4001) and listed by the State as threatened on June 27, 1971. Recovery of the San Joaquin kit fox is addressed in the Valley Recovery Plan issued by the Service in 1998. This species account is a brief summary. The recovery plan calls for protecting the Carrizo Plain Natural Area (CPNA), western Kern County, and the Ciervo-Panoche Natural Area as core populations while reducing their isolation by managing populations on connecting private and public lands through conservation agreements. The natural lands of western Kern County, including Elk Hills, Buena Vista Hills, the Lokern Natural Area, and adjacent natural lands inhabited by San Joaquin kit foxes are essential for San Joaquin kit fox recovery.

Distribution. The San Joaquin kit fox historically was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. The current range of the San Joaquin kit fox is divided into two areas, the northern range centering around eastern Contra Costa County and Alameda County, and the southern range in the San Joaquin Valley and neighboring valleys. They also occur in interior coastal ranges and watersheds from Monterey County to Ventura County. San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the CPNA in San Luis Obispo County. In the southern San Joaquin Valley, San Joaquin kit foxes also appear to make extensive use of habitat fragments in an urbanizing environment (Service 1998*a*), particularly in the Bakersfield area.

Reasons for Decline. Intensive agriculture, urbanization, and other land-modifying actions have eliminated extensive portions of habitat and are the most significant causes of this species endangerment. Such habitat losses contribute to San Joaquin kit fox declines through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations. The coyote and the introduced red fox compete for food resources with the smaller San Joaquin kit fox, and are known to prey upon San Joaquin kit fox as well (U.S. Department of Energy 1998). Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the vulnerability of this species.

Giant Kangaroo Rat (*Dipodomys ingens*)

Listing and Recovery. The giant kangaroo rat was federally listed as endangered on January 5, 1987 (52 **FR** 283) and listed by the State as endangered on October 2, 1980. Recovery of the giant kangaroo rat is addressed in the Valley Recovery Plan issued by the Service in 1998. This species account is a brief summary.

Distribution. The giant kangaroo rat was distributed historically from southern Merced County, south through the San Joaquin Valley, to southwestern Kern County and northern Santa Barbara County. Significant populations survive only in a few areas of remaining habitat, including the Panoche Hills, Cuyama Valley, Carrizo and Elkhorn Plains, and the Lokern area. The species' preferred habitat is native annual grasslands with sparse vegetation, good drainage, fine loamy soil, and slope of less than 10 percent.

Reasons for Decline. Completion of the San Luis Unit of the Central Valley Project and the California Aqueduct of the State Water Project resulted in rapid cultivation and irrigation of natural communities that had provided habitat for giant kangaroo rats along the west side of the San Joaquin Valley (Williams 1992, Williams and Germano 1993). Between about 1970 and 1979, almost all the natural communities on the western floor and gentle western slopes of the Tulare Basin were developed for irrigated agriculture, restricting occurrence of most species of the San Joaquin saltbush and Valley Grassland communities, including the giant kangaroo rat. This rapid habitat loss was the main reason for its listing as endangered.

Habitat destruction resulting from the development of small cities and towns along the western edge of the San Joaquin Valley between Coalinga and Maricopa, as well as development of the infrastructures for petroleum and mineral exploration and extraction, roads and highways, energy and communications infrastructures, and agriculturally related industrial developments collectively have contributed to the endangerment of the giant kangaroo rat. Widespread use of rodenticides and rodenticide-treated grain to control ground squirrels and kangaroo rats may also have contributed to the decline of giant kangaroo rats in some areas.

Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)

Listing and Recovery. The Tipton kangaroo rat was federally listed as endangered on August 8, 1988 (53 **FR** 25608), and listed by the State as endangered on June 11, 1989. Recovery of the Tipton kangaroo rat is addressed in the Valley Recovery Plan issued by the Service in 1998. This species account is a brief summary. The recovery plan calls for (1) research to determine how to manage natural lands to reduce the frequency and severity of population crashes, and (2) consolidation and protection of blocks of suitable habitat to minimize the effects of random catastrophic events on their populations.

Distribution. Tipton kangaroo rats inhabit saltbush scrub and alkali sink scrub communities in the southern San Joaquin Valley. The historical geographic range of Tipton kangaroo rats was over 1.7 million acres. Distribution was limited to arid-land communities occupying the valley floor of the Tulare Basin in level or nearly level terrain. By 1985, the inhabited area had been reduced, primarily by cultivation and urbanization, to about 60 thousand acres. In 1997, we estimated that they inhabited approximately 4 percent of their historic range (Service 1998*a*). Current occurrences are limited to scattered, isolated areas. In the southern San Joaquin Valley, this includes the Kern National Wildlife Refuge, Delano, and other scattered areas within Kern County.

The preferred location for Tipton kangaroo rat burrows typically involves alluvial fans and flood plains and includes fine, highly alkaline sands and, to a lesser degree, alkaline sandy loams. Burrow systems are usually in open areas but may occur in areas of thick scrub. They are typically simple, but may include interconnecting tunnels. Most are less than 10 inches deep. They are commonly in slightly elevated mounds, the berms of roads, canal embankments, railroad beds, and bases of shrubs and fences where wind-blown soils accumulate above the level of surrounding terrain. Terrain not subject to flooding is essential for permanent occupancy by Tipton kangaroo rats.

Reasons for Decline. The construction of dams and canals, which made a dependable supply of water available and allowed the cultivation of the alkaline soils of the saltbush, valley sink scrub, and relictual dune communities, was principally responsible for the decline and endangerment of the Tipton kangaroo rat. Widespread, unrestricted use of rodenticides to control California ground squirrels probably contributed to the decline or extirpation of small populations. Urban and industrial development and petroleum extraction all have contributed to habitat destruction. Except for small, isolated populations, predation is unlikely to threaten Tipton kangaroo rats. The increasing fragmentation of the range of Tipton kangaroo rats, however, increases the vulnerability of small populations to predation. Current threats of habitat destruction or modifications come primarily from industrial and agriculturally-related developments, cultivation, and urbanization, and secondarily from flooding.

California Condor (*Gymnogyps californianus*)

Listing and Recovery. The California condor was federally listed as endangered on March 11, 1967 (32 **FR** 4001), and State listed as endangered on June 27, 1971. Critical habitat was designated on September 24, 1976 (41 **FR** 187), in Tulare, Kern, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties. The *Condor Recovery Plan* (Service 1996) was revised in 1996. To assist in the recovery of condors, a captive breeding program was established in 1981 to provide captive-reared condors to release to the wild. The Service began reintroducing California condors to the wild in 1992, and as of March 26, 1999, 34 birds in California and 22 birds in Arizona are being closely monitored in the wild. No birds have bred yet in the wild. Because of deaths from contact with power lines, condors started undergoing power line aversion training in 1995 before their release. In 1997, two more condors died as a result of power line collisions (Service 1998*b*).

Description. The California Condor is a member of the Cathartidae family or new world vultures. With a wing span of nearly 3 meters (10 feet) and weighing approximately 10 kilograms (22 pounds), it is one of the largest flying birds in the world, as well as one of the rarest. Adults are black except for white underwing linings and edges of the upper secondary

coverts. The head and neck are mostly naked; the skin on the neck area is gray, grading into various shades of yellow, red, and orange on the head. Males and females cannot be distinguished by size or plumage characteristics. Condors do not kill for food but feed on available carrion.

Distribution. During the Pleistocene era (10,000 to 100,000 years ago) the California condor ranged from British Columbia, Canada to Baja California, Mexico and through the southwest to Florida and north to New York State. With the extinction of the large Pleistocene Era mammals, condors declined in range and numbers. Another large decline occurred when European settlers arrived on the West Coast, and accelerated during the gold rush of 1849. Condors were wantonly shot and poisoned, and eggs and adults were collected. By 1940, the condors' range was reduced to a horseshoe-shaped area in southern California that included the coastal mountain ranges of San Luis Obispo, Santa Barbara and Ventura Counties; a portion of the Transverse Range in Kern and Los Angeles Counties; and the southern Sierra in Tulare County. The last wild condor was captured in 1987; young birds raised in captivity have been reintroduced into the wild in western Monterey County, eastern San Luis Obispo County, and eastern Santa Barbara County in California, and near the Grand Canyon in Arizona.

Habitat Requirements and Reasons for Decline. The principal foraging regions used by condors since the late 1970s have been the foothills bordering the southern San Joaquin Valley and axillary valleys in San Luis Obispo, Santa Barbara, Kern, and Tulare Counties. Typically, foraging sites are in grasslands or oak-savannah regions at lower elevations, and roosting and nesting sites are located at higher elevations on cliffs. The important foraging areas are primarily private grazing lands.

The California condor declined over the past century to such a low level that only 21 individuals existed in 1982. Reasons for decline include human persecution, egg collecting, pesticides, lead poisoning, habitat loss, and the decline of its prey base of large and medium-size native mammals due to encroachments of agriculture and urbanization. Since reintroduction, five birds have died from colliding with power lines and/or poles.

Blunt-nosed Leopard Lizard (*Gambelia sila*)

Listing and Recovery. The blunt-nosed leopard lizard was federally listed as endangered on March 11, 1967 (32 **FR** 4001) and listed by the State as endangered on June 27, 1971. A recovery plan for the blunt-nosed leopard lizard was first prepared in 1980, revised in 1985, and then superceded by the multi-species Valley Recovery Plan (Service 1998*a*). This species account is a brief summary. The recovery strategy requires that the Service (1) determine appropriate habitat management and compatible land uses for the blunt-nosed leopard lizard; (2) protect additional habitat for them in key portions of their range; and (3) gather additional data on population responses to environmental variation at representative sites in their existing geographic range (Service 1998*a*).

Distribution. The blunt-nosed leopard lizard was distributed historically throughout the San Joaquin Valley and adjacent interior foothills and plains, extending from central Stanislaus County south to extreme northeastern Santa Barbara County. Today its distribution is limited to scattered parcels of undeveloped land, with the greatest concentrations occurring on the west side of the valley floor and in the foothills of the Transverse Range. The blunt-nosed leopard lizard prefers open, sparsely vegetated areas of low relief and inhabits valley sink scrub, valley saltbush scrub, valley/plain grasslands, and foothill grasslands vegetational communities.

Habitat Requirements and Reasons for Decline. Adult lizards often seek safety in burrows, while immature lizards use rock piles, trash piles, and brush. The lizards use burrows constructed by mammals, such as kangaroo rats, for overwintering and estivation. Adult lizards hibernate during the colder months of winter, and are less active in the hotter months of late summer. Adults are active above ground from about March or April through September. Hatchlings are active until mid-October or November, depending on weather. Lizard habitat has been significantly reduced, degraded, and fragmented by agricultural development, petroleum and mineral extraction, livestock grazing, pesticide application, and off-road vehicle use.

Hoover's Eriastrum (*Eriastrum hooveri*)

Listing and Recovery. Hoover's eriastrum was federally listed as threatened in July 19, 1990 (55 **FR** 29361). It has not been listed by the State as either threatened or endangered. The multi-species Valley Recovery Plan issued by the Service in 1998 addresses Hoover's eriastrum. This species account is a brief summary.

Distribution. Hoover's eriastrum was historically distributed in the Temblor Range (Kern and San Luis Obispo Counties), Cuyama Valley (San Luis Obispo and Santa Barbara Counties), and discontinuously in the San Joaquin Valley from Fresno County south, excluding the vicinity of Tulare Lake. The present distribution still extends from Bridge Road west of Fresno to near Cuyama in Santa Barbara County (Taylor and Davilla 1986). Several populations are protected at the Nature Conservancy's Paul Paine Preserve and CDFG's Alkali Sink Ecological Reserve. Some protection is afforded to known populations on Federal lands administered by the BLM and U.S. Department of Energy, and within established private conservation banks.

Habitat Requirements and Reasons for Decline. Hoover's eriastrum grows in scrub-grassland habitats with moderate cover of saltbush. It often grows among cryptogamic soil crusts (i.e., mats of moss, lichen, and algae) that reduce competition from annual grasses (Taylor and Davilla 1986). Valley-floor populations of Hoover's eriastrum have been destroyed primarily by farming operations and secondarily by urban development.

Environmental Baseline

This section contains an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species and their habitats addressed in this biological opinion within the action area of the proposed project. The action area of the proposed project is a portion of western Kern County, as shown on Figure 1. The effects of the proposed project are addressed in the following section and are not included here.

Federal, State, local, and private actions already affect the species addressed in this opinion within the action area. These actions include gas and oilfield development and pipeline installation, utility upgrades, power plant and transmission line construction, landfill operations, wastewater treatment operations, road construction and widening, sand dredging, and residential development. The Valley Recovery Plan discusses numerous Federal, State, and private individual or collaborative community-level conservation efforts. The majority of listed wildlife and plants in the action area have been, and continue to be affected by conversion of habitat to agricultural, industrial, and urban uses. This has eliminated many listed species from the majority of their historic ranges. The remaining natural communities are highly fragmented; many are marginal habitats in which some listed species may not persist during catastrophic events such as drought or floods (Service 1998*a*).

This region today is a landscape dominated by human activities including farming, oil and mineral exploration and extraction, urban development, pesticide applications, off-road vehicle use, and construction of transportation, communications, and irrigation infrastructures. For example, less than 150,000 acres on the Valley floor remains uncultivated, and most of the remaining undeveloped land is in the foothills in the Valley perimeter. Significant portions of the land not cultivated or urbanized have been developed for petroleum extraction, strip-mined for gypsum and clay, or occupied by roads, canals, airstrips, oil-storage facilities, pipelines, and evaporation and percolation basins. In addition, natural communities have been permanently altered by the introduction and proliferation of non-native plants, which now dominate many remaining natural habitats (Service 1998*a*).

These human activities can be linked to subsidized imported water and population growth in the San Joaquin Valley. Completion of the San Luis Unit of the Central Valley Project and the California Aqueduct of the State Water Project resulted in rapid cultivation and irrigation of wild lands along the west side of the San Joaquin Valley (Service 1998*a*). The population of Kern County is expected to double between 1987 and 2010, from 286,000 people to 567,500 people.

This population will occupy an additional 34,000 acres for houses and 10,500 acres for commercial and industrial uses (City of Bakersfield 1990). Consequently, the pressure to develop remaining wild land parcels will grow.

San Joaquin Kit Fox

Loss and degradation of habitat by agricultural, industrial, and urban developments and associated practices continue to affect San Joaquin kit foxes. Loss of habitat contributes to San Joaquin kit fox declines through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey. The isolation of remaining habitat fragments coupled with habitat degradation and barriers to movement, such as aqueducts and busy highways, limits dispersal and threaten survival of San Joaquin kit fox populations (Service 1998*a*).

Natural lands along the edges and within the San Joaquin Valley are considered suitable habitat for San Joaquin kit foxes. The largest extant populations of the San Joaquin kit fox occur near the project area and surrounding lands. These populations are located in western Kern County in and around the Elk Hills, Buena Vista Hills, Lokern Natural Area, and in San Luis Obispo County in the CPNA. This western Kern County population (which occupies the oilfields of Occidental Oil and the Naval Petroleum Reserve, the Lokern Natural Area, and adjacent natural lands) is one of the three core populations identified as essential for recovery of the San Joaquin kit fox (Service 1998*a*).

San Joaquin kit fox population trends in western Kern County and the CPNA in recent years are downward as they are throughout the species' range (Asserson and Williams 1999, personal communications). Detailed studies of the western Kern County population have recently been conducted. Population monitoring of San Joaquin kit fox at the former Naval Petroleum Reserve on the west side of Kern County indicated a general downward trend in foxes captured from 1981 to 1996, as shown in Table 6. EG&G Energy Measurements Group, which was under contract to the U.S. Department of Energy, captured more than 50 individual foxes per year in 1981, 1982, and 1994. Thirty-three foxes were captured in 1995, and 24 foxes were captured in 1996. Reasons for the decline are not fully understood and are probably complex. The decrease in fox captures from 1995 to 1996 may be caused in part by a decrease in the abundance of kangaroo rats, other rodents, and lagomorph prey species, possibly depressing overall reproductive success and survival (Otten and Cypher 1997).

The California Energy Commission conducted studies of the San Joaquin kit fox in undeveloped and oil-developed areas in western Kern County during 1989-1993 (Spiegel 1996). The undeveloped and moderately developed research areas for that study were located along State Route 58. The western Kern County kit fox population declined in part because of a reduction in prey populations induced by drought during the study period (Spiegel and Tom 1996).
CDFG biologists regularly conduct nighttime spotlight surveys for kit foxes along a route that includes portions of State Route 58. The biologists frequently observe kit foxes along this route. Survey results from the route indicate a decline in kit fox numbers over the last several years. In other areas of Kern and San Luis Obispo Counties, occurrences of San Joaquin kit fox are more fragmented. Some San Joaquin kit foxes have managed to find foraging and denning habitat within the City of Bakersfield, especially along the Kern River.

All of the project site and associated transmission line corridor contain suitable habitat for San Joaquin kit foxes. Kit foxes or their sign were observed at numerous locations near the facility site and along the transmission line corridor.

The BLM has acquired over 120,000 acres of habitat in the CPNA since 1988 that have been dedicated to the long-term conservation and recovery of San Joaquin Valley listed plants and animals. Within this area, over 40,000 acres of previously cultivated farm lands have been returned to natural lands supporting San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard habitat.

Giant Kangaroo Rat

The decline of giant kangaroo rats is attributed primarily to habitat loss from the conversion of native scrub and grasslands to agriculture (Service 1998*a*). An estimated 1.8 percent of the giant kangaroo rat's historical habitat remains (Williams 1992). Populations within remaining habitat fluctuate widely in response to changing weather patterns (Williams 1992, Service 1998*a*). Since listing as endangered, conversion of habitat for giant kangaroo rats has slowed substantially, because most tillable land has already been brought into cultivation, and because of a lack of water for additional irrigated acres. However, during and following the 1994-1995 winter, biologists noted a decline in abundance of kangaroo rats in the southern San Joaquin Valley. Decreased sign of activity and lower than expected trapping results were observed at several dispersed sites. Dramatic declines were noted for short-nosed, Tipton, and Heermann's kangaroo rats, although only modest reductions were noted for giant kangaroo rat populations on the valley floor (Single et al. 1996).

Urban and industrial developments, petroleum and mineral exploration and extraction, new energy and water conveyance facilities, and construction of communication and transportation infrastructures continue to destroy habitat for giant kangaroo rats and increase the threats to the species by reducing and further fragmenting populations. Rodent control programs have also contributed to the species' decline. Habitat degradation due to lack of appropriate habitat management on conservation lands, especially lack of grazing or fire to control density of vegetation (including shrubs) may be an additional threat to giant kangaroo rats (Williams and Germano 1993). Though many recent and future habitat losses will be mitigated for by protecting habitat elsewhere, they still result in additional loss and fragmentation of habitat.
The BLM, in cooperation with species experts, has initiated giant kangaroo rat population monitoring studies in the Lokern and CPNA areas. There have been significant declines in giant kangaroo rat numbers on BLM lands in response to both drought and above average rainfall conditions. While these fluctuations have been drastic in nature, the giant kangaroo rats have rebounded from low population numbers following the drought. Since the 1993 rebound, numbers have declined to various levels. Wildfire and prescribed burn monitoring has indicated that this species responds positively to fire (Germano and Saslaw, 1999, unpublished data).
One of the six major population areas of the giant kangaroo rat is located in or near the Elk Hills Power project area. The population that occurs in western Kern County in the Lokern and Elk Hills areas and various other uplands near Taft, Maricopa, and McKittrick is intersected by the proposed transmission line. The western Kern County giant kangaroo rat population is one of the three largest populations of the species (Service 1998*a*).

The decline in kangaroo rat abundance and distribution has been well documented in the southern San Joaquin Valley (Single et al. 1996). In the Lokern area, the decline in giant kangaroo rats may have been caused by the combination of an extremely hot fire that occurred in spring 1997 that burned approximately 5800 acres, and several years of heavier than normal precipitation.

Tipton Kangaroo Rat

The causes of decline of the Tipton kangaroo rat are similar to those discussed above for the giant kangaroo rat. Conversion of native habitats to agricultural production is considered the primary reason for the Tipton kangaroo rat's population decline (53 FR 25608). Construction of canals, roads, highways, railroads, and buildings and the use of rodenticides have probably also accelerated this subspecies' population decline. Because of the small, isolated nature of many remaining populations, their lack of genetic diversity, and low powers of dispersal, Tipton kangaroo rats are especially vulnerable to local extirpation from random environmental events such as flooding or unpredictable land use changes.

Ongoing population monitoring has not been conducted to follow population trends of Tipton kangaroo rats on lands through which the project passes. However, the NDDB identifies occurrences of the Tipton kangaroo rat in the project vicinity (CDFG 1998). All of these records are from Williams (1985).

California Condor

California condors roost and nest in higher elevation areas on cliffs, and forage across hilly lower elevation areas. They are known to forage up to 100 miles from their roosts. Condors from San Luis Obispo and Santa Barbara Counties have been seen in Taft in Kern County, at the edge of the coastal mountains (Mitchell 1998 personal communication) and within the CPNA. The birds which were reintroduced in Santa Barbara and San Luis Obispo Counties forage in the foothills and on the valley floor west of Interstate 5 in western Kern County and along the Tehachapi foothills in southern Kern County. Foraging habitat for the California condor has been lost to oil development, urban development, and row crops (Service 1998*b*).

Recent releases of captive-reared condors in Ventura, Santa Barbara and San Luis Obispo Counties have increased the possibility that these birds may encounter construction operations and maintenance activities or transmission lines in foraging habitat in the vicinity of this project. A new release of 6 condors occurred in 1999 in northwestern Santa Barbara County, near the edge of the San Joaquin Valley. Condors were not observed in the project area in 1998. Should condors become established in coastal California, it is likely they would fly over the entire southern San Joaquin Valley, including the project area. Although condors bred in the wild were not known to forage on the valley floor, the animals bred in captivity tend to be more opportunistic and may feed there (Robert Mesta 1998 personal communication).

Blunt-nosed Leopard Lizard

In Kern County, the blunt-nosed leopard lizard currently occupies scattered parcels of undeveloped land on the Valley floor, and occurs in the foothills of the Coast Range. While the blunt-nosed leopard lizard can occupy grassland used for grazing it prefers lands with scattered shrubs and sparse grass/forb cover. Habitat for the blunt-nosed leopard lizard has been lost or degraded due to oil development, urban development, row crops, pesticide application, and off-road vehicle use (Service 1998*a*).

Habitat disturbance, destruction, and fragmentation continue as the greatest threats to blunt-nosed leopard lizard populations. Disturbances and modifications of habitats within areas of mineral and petroleum development pose lesser, but continuing threats as they degrade the habitat. Direct mortality occurs when animals are killed in their burrows during construction, killed by vehicle traffic, drowned in oil, or fall into excavated areas from which they are unable to escape. Displaced lizards may be unable to survive in adjacent habitat if it is already occupied or unsuitable for colonization.

Livestock grazing can result in removal of herbaceous vegetation and shrub cover and destruction of rodent burrows used by lizards for shelter. Unlike cultivation of row crops, which precludes use by leopard lizards, light or moderate grazing may be beneficial. The use of pesticides may directly and indirectly affect blunt-nosed leopard lizards. The insecticide Malathion has been used since 1969 to control the beet leafhopper, and its use may reduce insect prey populations. Fumigants such as methyl bromide are used to control ground squirrels. Because leopard lizards often inhabit ground squirrel burrows, they may be inadvertently poisoned.

In recent years, above average precipitation seems to have increased the amount of vegetative cover. This increase in cover may be a factor in the low abundance of adult lizards seen during the population monitoring at the former Naval Petroleum Reserve in western Kern County in 1995 (U.S. Department of Energy and Chevron 1996).

The BLM has conducted surveys and compiled observational data from BLM lands in western Kern, Kings, and Fresno Counties. Currently, the BLM and USGS-Biological Research Division are conducting a 5- to 10-year research study in the Lokern Area to evaluate the effects of cattle grazing on blunt-nosed leopard lizards, giant kangaroo rat, San Joaquin antelope squirrel, other small mammals, and Kern mallow.

Extant populations of blunt-nosed leopard lizards are known from the Carrizo Plain, Elk Hills, around Taft, and at various other locations in the vicinity of the project area (Service 1998*a*). There are numerous records from the vicinity in the NDDB and other sources. The McKittrick

Valley area is included in one of several larger areas given highest priority for habitat protection for the blunt-nosed leopard lizard (Service 1998*a*). The Lokern and Elk Hills areas have also been targeted for habitat protection for the species (Service 1998*a*).

Suitable habitat for the blunt-nosed leopard lizard is available in annual grassland and saltbush scrub habitats in the project area and vicinity. There are numerous records (CDFG 1998) and high potential for blunt-nosed leopard lizards to occur near the transmission corridor in the Lokern Natural Area. The Lokern area has experienced a decline in wildlife abundance, including declines in leopard lizard numbers in recent years (David Germano personal communication 1998).

Hoover's Eriastrum

Valley floor populations of Hoover's eriastrum have been destroyed primarily by farming operations and secondarily by urban development. In 1986, an estimated 92 percent of the known extant populations of Hoover's eriastrum were threatened by future conversions to agricultural use, groundwater recharge basins, and oil and gas development (Taylor and Davilla 1986). Hoover's eriastrum exists on some remnants of native habitat in western Kern County. Although some sites contain substantial populations (5,000-40,000 individuals), most of the remaining sites on the valley floor are at risk because they are isolated from one another, range in size from approximately 1 acre to less than 400 acres, and contain fewer than 1,000 individuals (55 **FR** 29361). Occurrences of the plant in the Bakersfield metropolitan area are threatened by development. Conversion of land from native habitat or grazing to row crops continues to threaten Hoover's eriastrum populations in western Kern County (Service 1998*a*).

The occurrences identified during surveys for the Elk Hills project are part of the Lokern-Elk Hills-Buena Vista Hills-Coles Levee-Maricopa-Taft area population. This area was also surveyed in 1994 and 1995 and Hoover's eriastrum was observed in both years.

Effects of the Proposed Action

Effects of the Proposed Action on Listed Animals

Potential impacts to listed animals of constructing and operating a power plant with its associated transmission lines, pipelines and concomitant activities in Kern County include direct effects such as impacts to endangered species habitat, impacts to the Lokern Natural Area, Coles Levee Preserve, and Elk Hills Preserve; direct mortality or injury; direct loss of shelter, dens, or burrows; temporary habitat losses for animal and plant species in the proposed project area; harassment; entrapment or entombment; displacement; accidental wildfires; and possible restrictions of animal movements through the area.

Direct mortality or injury could result from vehicle strikes, or from collapsed dens and burrows resulting in animals being crushed or entombed. Burrows and dens could be destroyed or damaged by vehicle traffic (particularly by traffic of heavy equipment), or by trenching, tower construction, or cable pulling, resulting in mortality, entrapment, or entombment. Any ditches dug and left open overnight could entrap wildlife. Any equipment with hiding places, such as pipes, can attract wildlife, and create hazards for them if left open or uncapped overnight.
Any burrows or dens located in the project area may be destroyed. Animals that occur in the project area could be displaced during grading, transmission line and pipeline construction, recontouring, and revegetation activities. Such displacement of animals into unfamiliar areas could increase the risk of predation and increase the difficulty of finding required resources such as food and shelter.

Listed animal species are likely to be subject to harassment while the construction projects are being conducted. Such harassment would result from ground vibrations, burrow and den destruction, and from the inherent increase in vehicular traffic and human presence. Human disturbance from construction could result in harassment and displacement of animals, whether or not the animals' dens and burrows are directly impacted. Harassment may alter the behavior

of animals (e.g., activity periods, space use) resulting in increased predation risk, reduced access to resources, and reduced breeding success. Conducting construction activities during the winter breeding season for San Joaquin kit foxes or in the vicinity of natal dens during the spring months when they whelp could increase the potential for adverse impacts, if natal dens or occupied dens are in the vicinity of work sites. Conducting construction activities during the spring breeding season for other wildlife could increase the potential for adverse impacts.

Construction will be conducted during daylight hours as much as possible, which is intended to limit the potential for adverse effects, although blunt-nosed leopard lizards are diurnal. Ditches will be provided with escape ramps and checked before work recommences each day; pipes and other equipment with potential hiding places will be capped and/or checked before they are moved or used. If revegetation is implemented on certain sites, seeding shall be conducted by using a seed mix that closely matches the composition of species present on the site. Indiscriminate seeding may result in habitat characteristics less favorable for listed species (U.S. Department of Energy 1998).

The potential for harassment will be minimized by measures agreed to by Elk Hills Power regarding employee training, pet prohibitions, trash restrictions, and the presence of a qualified biologist. However, harassment to individuals from construction noise and vibration is inherent in this activity and unavoidable.

Listed and proposed plant and animal species may be indirectly affected due to this project because of the increased availability of power. The location of the development that will occur because new power is available is hard to determine because the power is being fed to the grid, and it is unlikely at this time that long term contracts will be used to sell this power to specific utilities. Therefore these indirect effects have not been addressed for this project.

The proposed project will contribute to the local and range-wide trend of habitat loss, fragmentation, and degradation, which are the principal causes of the decline of the species addressed in this biological opinion.

Noise. The proposed plant site and a portion of transmission line corridor are in areas that have been heavily developed for oil production. The noise from the proposed construction is not expected to exceed the levels that normally occur during oil production activities that are occurring in the area.

When an electric transmission line is energized, an electric field is generated in the air around the conductors. This electric field may cause corona. Corona is the breakdown of the air in the vicinity of the transmission line phase conductors. When the intensity of the electric field at the conductor surface exceeds the breakdown strength of the surrounding air, a corona discharge occurs at the conductor surface. This corona discharge produces energy, which can result in audible noise. Corona-generated audible noise can be characterized as a hissing crackling sound, which can generate complaints under certain atmospheric conditions. However, due to the relatively low voltage transmitted by the proposed line, minimal noise will be produced. Common and sensitive wildlife species in the area will not be exposed to any unusual levels of noise and will not be significantly affected by this potential impact.

Light. Lights will be on each night at the Elk Hills Power Plant site for purposes of security and task lighting as necessary. Emergency lighting may be employed during rare events.

This level of lighting will create a new source of night-time illumination within the surrounding setting of the Elk Hills Power Plant site. Many of the existing structures in the area are not illuminated. However, there are facilities in the vicinity which are lit, including street lights at key roadway intersections, although concentrated areas of light are few.

San Joaquin Kit Fox. The likelihood of direct mortality to San Joaquin kit foxes from either crushing or entombment in dens is low because of avoidance measures proposed by Elk Hills Power. San Joaquin kit foxes may be adversely affected by vehicle strikes, and harassment from noise and vibration. San Joaquin kit foxes may be adversely affected by construction activities temporarily blocking travel corridors in grassland and agricultural areas, or by evening construction activities disturbing night time foraging.

San Joaquin kit foxes inhabiting the project area and surrounding vicinity (for purposes of this biological opinion the surrounding vicinity is described as 300 meters [approximately 1000 feet] outside and adjacent to the project footprint) are likely to be subject to indirect effects including temporary harassment from noise associated with project activities and human presence, and a reduction in natural food sources as a result of habitat disturbance. Harassment can also result from heavy equipment vibration causing the collapse of dens and subsequent displacement of resident animals, which may become vulnerable to increased predation, exposure, or stress through disorientation and loss of shelter.

Project effects on San Joaquin kit foxes is expected to be greater during the den selection, pregnancy, and early pup dependency periods of the breeding cycle (December through July) than at other times of the year. San Joaquin kit foxes may exhibit increased sensitivity to disturbance during this period and therefore, ideally, surface-disturbing activities should occur between August and November. Where this is possible, it is anticipated that surface-disturbing activities and other actions likely to result in harassment will be minimized in the vicinity of San Joaquin kit fox natal dens. Habitat compensation measures are anticipated to minimize habitat impacts due to project implementation.

Giant and Tipton kangaroo rats. Giant and Tipton kangaroo rats may be adversely affected by vehicle strikes, entombment in burrows, temporary loss or degradation of their habitat, and harassment from noise and vibration. Some Tipton kangaroo rats or giant kangaroo rats may escape direct injury if dens and burrows are destroyed, but become displaced into adjacent areas. They may be vulnerable to increased predation, exposure, or stress through disorientation, loss of foraging and food base, and loss of shelter. Elk Hills Power will provide a biological monitor who can remove individuals from harm's way or allow them to escape unimpeded, as described in the BRMIMP. Habitat compensation measures are anticipated to minimize habitat impacts due to project implementation.

Noise is thought to have a significant effect on giant and Tipton kangaroo rats for several reasons. Giant kangaroo rats are known to communicate among each other by foot drumming (Randall, 1997). Foot drumming may serve the function of allowing neighbors to recognize each other. However, there is no documentation of specific impacts to individual kangaroo rats from noise, or to impacts to kangaroo rat populations that can be attributed to noise. These potential impacts would most likely be restricted to areas where noise levels are at or above 95 dBA, estimated to be within about 300 feet of construction activities for a similar project (La Paloma Generating Company 1998).

There also exists some chance of take of individual kangaroo rats due to injury and mortality during construction and operation. Elk Hills Power has agreed to measures, contained in the BRMIMP, that will avoid and minimize impacts to Tipton kangaroo rats.

California Condor. Potential adverse effects of construction and maintenance activities associated with the Elk Hills Project include collision with transmission lines; permanent and temporary loss of potential foraging habitat (by displacement from construction activities); harassment and/or accidental flushing of perched or feeding birds; and accidental poisoning by chemicals associated with the use of heavy equipment, such as antifreeze, oil, and grease. Bird flight diverters on the ground wire at the top of the transmission poles will reduce the likelihood of collisions by making the wires more visible to birds. Since reintroduction, five birds have died from colliding with power lines. Aversion training may improve the captive-raised condors' ability to avoid this risk. Although the project is considered to have suitable foraging habitat for the condor, the potential of other effects occurring is considered extremely low because the condor is not likely to be present in the project area during construction, and Elk Hills Power' emergency contingency plans minimize the chance of chemicals being available for the birds to drink. With implementation of the mitigation measures that are part of the proposed action, the potential for take of condors will be minimized.

Some potential for take of individuals exists by electrocution and transmission line collision. The chance of electrocution is very unlikely because of transmission line tower design; wires will be too far apart to allow electrocution. The probability of collision should be reduced because of the transmission tower aversion training the captive-bred birds receive prior to being released. Condors could collide with the power lines associated with this project.

Blunt-nosed Leopard Lizard. Blunt-nosed leopard lizards are likely to be adversely affected by vehicle strikes, entombment in burrows, temporary loss or degradation of their habitat, and harassment from noise and vibration. Some blunt-nosed leopard lizards may escape direct injury if burrows are destroyed, but become displaced into adjacent areas. They may be vulnerable to increased predation, exposure, or stress through disorientation, loss of foraging and food base, and loss of shelter.

Blunt-nosed leopard lizards will be subject to a greater risk of vehicle strikes during their above-ground active period (April 15 to September 30) and at greater risk of entombment in burrows when they are inactive and hibernating underground (October 1 to April 14). Hatchlings can be active until mid-October or November, depending on weather. Therefore, hatchlings may be subjected to a lower risk of entombment if construction occurs during above-ground lizard activity periods. In general, soil disturbance activities are to be conducted during the blunt-nosed leopard lizard activity period when air temperatures are between 74 and 104 degrees Fahrenheit (23.5 to 40 degrees Celsius). During such times, blunt-nosed leopard lizards are often active on the ground surface and can flee the path of vehicles, or can be observed and avoided by vehicle operators. Eggs are likely to be crushed during this period.

Information about the susceptibility of other lizards to noise suggests that there could be a potential for impacts to blunt-nosed leopard lizards from construction noise, even when they are in burrows. However, there is no documentation of specific impacts to individual blunt-nosed leopard lizards from noise or to impacts to blunt-nosed leopard lizard populations that can be attributed to noise. These potential impacts would most likely be restricted to areas where noise levels are at or above 95 dBA, estimated to be within about 300 feet of construction activities for a similar project (La Paloma Generating Company 1998).

Leopard lizards have high site fidelity. All leopard lizards released away from their home ranges are subject to predation, competition, and thermal stress. Those released into the temporary shelters may not recognize their territories and be subject to the same effects. The prey source will be seriously diminished from project activities and leopard lizards are likely to have very low reproduction fitness in the years following project implementation.

Elk Hills Power' avoidance and minimization measures described in the BRMIMP will help to ameliorate the above effects. Any revisions to the BRMIMP will be approved by CEC and the Service. Elk Hills Power plans to trap and relocate individuals in harm's way, and to hand-excavate burrows to avoid entombment. Artificial burrows will be constructed for sheltering released animals. Many of the impacts to animal species will be tempered given the timing of construction; the temporary nature of the transmission and pipeline construction; and the

avoidance and minimization measures incorporated in the project description to protect individuals. Additionally, the acquisition of pre-approved compensation areas will assist in recovery goals outlined in the Service's Valley Recovery Plan (Service 1998*a*).

Effects of the Proposed Action on Listed Plants

Project-related vehicular traffic, grading for the plant site, excavation for transmission lines and pipelines, air pollution, and wildfires, should they inadvertently be started during project activities, could negatively affect local populations of all the listed plant species addressed in this biological opinion. Except for the possibility of wildfires and air pollution, these hazards will be greatest in the immediate vicinities of roads, transmission and pipeline corridors, and along cross-country travel routes if such routes are used. Actions related to construction, such as grading, excavation, clearing for laydown areas, and other ground-disturbing activities, may cause direct loss of plants and loss of occupied and potential habitat. In addition, these activities will increase the opportunities for introduction and dominance of aggressive, non-native plant species that are competitive with the listed and proposed plants. Construction through occupied habitat fragments populations and may restrict gene flow, thereby reducing the species' ability to survive. Species that may occur in the project area, such as Hoover's eriastrum, Kern mallow, and San Joaquin woolly-threads may be damaged or destroyed by subsequent routine maintenance.

Potential impacts to listed plants include direct mortality from earth grading or excavation or crushing by vehicles. Adverse impacts also could result from soil erosion resulting in loss of the supporting substrate for plants, or from soil compaction resulting in reduced germination rates. Impacts to plants occurring after seed germination but prior to seed set could be particularly harmful as both current and future generations would be adversely affected.

San Joaquin woolly-threads and Kern mallow were not observed either at the project site or along the transmission line corridor; however, Hoover's eriastrum was found at numerous locations to be affected by the project. Measures contained in the BRMIMP will compensate and minimize impacts to Hoover's eriastrum associated with the proposed project.

Indirect effects of project activities on all listed plant species include loss of soil structure, fertility, water holding capacity, and cryptogamic crusts, which seem to be an essential microhabitat feature for some rare plant species. Fragmentation essentially isolates locations of plants from other locations so that cross-pollination between locations becomes unlikely. This isolation can result in distinct genetic populations and the ultimate decline in some species because of the lack of genetic variability within populations. Roads associated with transmission lines and power plant facilities development increase access for off-road vehicle use, fragment populations, and contribute to additional habitat damage.

However, avoidance and minimization in the form of (1) pre-project surveys for listed and proposed plants and animals, (2) avoidance of impacts in listed and proposed plant and animal habitat, and (3) acquisition of appropriate compensation areas, will likely minimize the effects of the proposed action.

Other Species of Concern. Burrowing owls, Lost Hills saltbush, heartscale, gypsum-loving larkspur, oil nest straw, loggerhead shrikes, hollisteria, American badgers, short-nosed kangaroo rats, and nesting raptors are other species of concern found during the surveys. All of these species are often found in habitats associated with the listed species discussed above. Compensation measures designed to minimize impacts to the listed species will also minimize impacts to these species.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Numerous non-Federal activities continue to eliminate habitat for the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, blunt-nosed leopard lizard, California condor, or Hoover's eriastrum in the action area. Loss and degradation of habitat affecting both animals and plants continues as a result of urbanization; oil and gas development on private lands; road and utility right-of-way management; flood control and water banking projects that may not be funded, permitted, or constructed by a Federal agency; overgrazing by livestock; and continuing agricultural expansion. Listed and proposed animal species are also affected by poisoning, shooting, increased predation associated with human development, ground squirrel reduction efforts, mosquito control, and reduction of food sources. Extinction of several remaining populations of some of these species appears likely, due to chance fluctuation of small populations, or due to one of the factors cited above, unusual climatic events, or to the loss of genetic fitness commonly associated with very small population sizes. The cumulative effects of these known actions pose a significant threat to the eventual recovery of these species.

The current strategy for recovery of listed species is to secure large contiguous blocks of habitat to support core populations. In addition, land connecting the large core areas would be managed to support scattered populations and to serve as corridors between core areas. Rehabilitation of disturbed lands may also be necessary to provide sufficient habitat to support populations that will remain stable in perpetuity.

Agencies and organizations, such as the CDFG, The Nature Conservancy, the Center for Natural Lands Management, the BLM, and the Service, have begun to secure some of the core lands identified as important for recovery. Several local planning efforts which are focused on reducing the impacts of urbanization and industrialization on listed species are also underway. These positive actions may reduce the likelihood that the continued existence of these species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of these species in the long term, and may not be sufficient to protect the species from extinction in the long term.

Elk Hills Power has requested interconnection for their project with PG&E's Midway substation in Buttonwillow. The objective for developing the Elk Hills Power Project is to sell power to a mix of wholesale and retail customers in the newly deregulated electricity market. The Service acknowledges that the Elk Hills Power Project may have growth-inducing effects within its service area. However, the location and extent of service area effects from the project has not been determined. To the extent that action areas for future section 7 consultations will overlap with the service area of the Elk Hills Power Project, the Service believes these potential indirect, service area effects will be addressed. For example, the Service expects to address many of these effects in future consultations on Central Valley Project (CVP) water contract renewals which will also address growth-induced service area effects. To the extent that power from the Elk Hills Power Project has service area effects beyond areas also served by CVP water, the location of those effects has not been determined. For the purposes of this consultation, the action area for the Elk Hills Power Project is considered to be western Kern County.

Conclusion

After reviewing the current status of the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, California condor, blunt-nosed leopard lizard, and Hoover's eriastrum, the environmental baseline for the action area, the effects of the proposed Elk Hills Power Project, and cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the listed species covered under this biological opinion, and is not likely to destroy or adversely modify designated critical habitat.

No critical habitat has been designated for San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, blunt-nosed leopard lizard, or Hoover's eriastrum, therefore, none will be affected. Critical habitat has been designated for the California condor, however, no destruction or adverse modification of that critical habitat is anticipated from this project.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the Act, which refer to terms and conditions and exemptions on taking listed fish and wildlife species do not apply to listed plant species. However, section 9(a)(2) of the Act prohibits removal or reduction to possession and malicious damage or destruction of such species on Federal lands and the removal, cutting, digging up, or damaging or destroying such species in knowing violation of any State law or regulation, including State criminal trespass law. Actions funded, authorized or implemented by a Federal agency that could result in the removal or destruction of such species on Federal lands are not a violation of the Act, provided the actions are not likely to result in jeopardy to the species. The California Native Plant Protection Act prohibits the take of State-listed plants.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued by BLM, in order for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by this incidental take statement. If the BLM (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

<u>San Joaquin Kit Fox, Giant Kangaroo Rat, Tipton Kangaroo Rat, and Blunt-nosed Leopard Lizard</u>

The Service expects that incidental take of San Joaquin kit foxes, giant kangaroo rats, Tipton kangaroo rats, and blunt-nosed leopard lizards will be difficult to detect or quantify for the following reasons: Their relatively small body size make the finding of a dead specimen unlikely, losses may be masked by seasonal fluctuations in numbers or other causes, and the species occur in dens and burrows. Due to the difficulty in quantifying the number of San Joaquin kit foxes, giant kangaroo rats, Tipton kangaroo rats, and blunt-nosed leopard lizards that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of habitat that will become unsuitable for the species as a result of the action.

Therefore, the Service estimates that 14.62 acres of habitat for the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard will become permanently unsuitable as a result of the proposed action, and 39.15 acres of San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard habitat will become temporarily unsuitable. ***As a result of the Midway Substation expansion the Service estimates that 4.5 acres of habitat for the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard will become permanently unsuitable as a result of the proposed action, and 0.3 acres of San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard habitat will become temporarily unsuitable.*** Upon implementation

of the following reasonable and prudent measures, incidental take associated with the Elk Hills Power Project on these acres in the form of harm, harassment, or mortality to San Joaquin kit foxes, giant kangaroo rats, Tipton kangaroo rats, and blunt-nosed leopard lizards from habitat loss, capture, relocation, excavation of dens and burrows, and loss of forage/prey will become exempt from the prohibitions described under section 9 of the Act for direct impacts. Harassment from project-related noise and vibration, and the displacement of individuals within the above acreages, and an additional 100-foot area adjacent to the project and any access routes will be exempt from the prohibitions described under section 9 of the Act, provided that such harassment: (1) is the result of bona fide project activities; and (2) that all terms and conditions specified below are fully implemented. In addition, incidental take in the form of harm, harassment, or mortality associated with the Elk Hills Power Project on these acres of habitat will be exempt from the prohibitions described under section 9 of the Act for indirect impacts as a result of the management activities described.

California Condor

The Service anticipates incidental take of California condors may occur as a result of implementing the proposed project. Incidental take is possible in two forms. One form is harassment associated with the maintenance of the transmission line which could disturb perching or feeding condors. The second form of take is in the form of killing or harm from collision and/or electrocution with the proposed transmission line. Incidental take will be difficult to detect because collisions are difficult to detect, dead or injured birds may be removed by scavengers, and injured birds may fall or move outside the search area. Due to the low likelihood of encountering a dead or injured bird, the Service is quantifying take incidental to the project as that amount of take which would occur in the area that will become potentially hazardous for the species as a result of the action, quantified as 8.6 miles of transmission line.

The incidental take associated with the proposed action is hereby exempted from prohibitions of take under section 9 of the Act.

Effects on listed species that occur due to development of additional houses, roads, commercial, and industrial facilities, because of the increased availability of power are not addressed in this incidental take statement. These effects are considered to be indirect effects of the Elk Hills Power Project as defined in the Act.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the listed wildlife species in this opinion or result in destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the impact of the Elk Hills Power Project on San Joaquin kit foxes, blunt-nosed leopard lizards, giant kangaroo rats, Tipton kangaroo rats, and California condors exempted by this opinion.

1. Implement conservation measures for the San Joaquin kit foxes, blunt-nosed leopard lizards, giant kangaroo rats, and Tipton kangaroo rats to minimize (1) the effects of the loss of habitat that will occur as a result of the project; (2) the potential for harassment, harm, injury, and mortality to the San Joaquin kit foxes, blunt-nosed leopard lizards, giant kangaroo rats, Tipton kangaroo rats, and California condors; and (3) the potential for inadvertent capture or entrapment of federally listed wildlife species during construction and operation activities.

1. Ensure compliance with this opinion by Elk Hills Power and their contractors.

Terms and Conditions

In order to be exempt from section 9 of the Act, BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. To implement reasonable and prudent measure number one, BLM shall ensure that Elk Hills Power complies with the following conditions:
   a. Construction of the power plant will start within 3 years of the date of this Biological Opinion or the BLM will reinitiate consultation.
   b. A qualified biologist will be designated to supervise pre-activity surveys, and construction activities as they relate to listed species. The Service will approve the selection of the qualified biologist.
   c. A sensitive species awareness education training will be mandatory for all on-site personnel through both construction and operational phases of the Elk Hills Power project.
   d. New workers to the project will receive training within the first 3 days of their start date.
   e. Pre-activity surveys will be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities. Surveys will be conducted of the proposed work zones and a 1000 foot buffer area. Surveys will locate active raptor nests within 1320 feet of proposed work zones.
   f. Minimum exclusion zone radii for all project activities are as follows:
      (1) 1000 feet from occupied San Joaquin kit fox natal or pupping dens, and notify the Service
      (2) 150 feet from known San Joaquin kit fox natal or pupping dens
      (3) 100 feet from occupied San Joaquin kit fox dens
      (4) 100 feet from known San Joaquin kit fox dens
      (5) 50 feet from potential San Joaquin kit fox dens
      (6) 50 feet from giant kangaroo rat burrow systems
      (7) 50 feet from potential or known San Joaquin antelope squirrel burrows
      (8) 50 feet from potential or known blunt-nosed leopard lizard burrows
      (9) 50 feet from Hoover's eriastrum (Hoover's woolly-star)
      (10) 100 feet from all other listed plants.
   g. Ground-disturbing activities are restricted during the following time periods to protect the indicated species:
      (1) Kit foxes: If occupied natal dens are found, surface-disturbing activities within a quarter mile of natal dens shall not occur between December and May.
      (2) Blunt-nosed leopard lizards: Surface-disturbing activities that occur in areas where blunt-nosed leopard lizard habitat has been identified shall occur only during daylight hours (a) from April 15 to June 30 and August 1 to September 15 and (b) only during daylight hours on other dates if air temperatures are between 25 and 35 degrees Centigrade and soil temperatures are between 30 and 50 degrees Centigrade. Air and soil temperature measurements must be taken in accordance with CDFG 1990 and recorded and reported to the Service when surface-disturbing activities occur as in (b) above. During times of the year not included in (a) or (b) above, burrows can be excavated by hand, if necessary, and any lizards found shall be held by Dr. Germano, as presented in the draft BRMIMP.
   h. All handling of endangered species will be done by biologists in possession of a valid 10(a)(1)(A) permit for that species.
   i. All kit fox dens will be avoided when at all possible. Limited destruction of kit fox dens is allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type is accorded a different level of protection.

(1) Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

(2) Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised. Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgement of the biologist, the animal has escaped from the partially destroyed den.

(3) Potential Dens: Den destruction may proceed without monitoring. If a den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then destruction shall cease and the den shall be treated as a known den.

j. The following measures and practices, provided in the Avian Power Line Interaction Committee's 1994 and 1996 State of the Art Handbooks (APLIC 1994 and 1996), shall be implemented for the entire transmission line being used by Elk Hills Power (8.6 miles to the PG&E Midway Substation):

(1) All ground wires on transmission lines shall be equipped with bird flight diverters;

(2) Suitable spacing shall be provided between conductor wires to minimize risk of electrocution for California condors and all smaller birds;

(3) Bird flight diverters shall be installed to manufacturer's specifications before the line is energized; and

(4) Bird flight diverters shall be maintained for the life of the facility.

k. To minimize backscatter light, and because the purpose of outside lighting is to illuminate the surfaces and ground plane of the facility, outdoor lighting fixtures will include shields and hoods to produce downcast.

l. Compensation lands to be set aside in the Lokern Natural Area will be endowed for perpetual care, and will have a management plan developed by the Center for Natural Lands Management to direct that care. Elk Hills Power must provide written verification to the Service that the required compensation funds have been provided to CNLM for purchase, endowment, and initial management activities before power plant construction activities commence.

m. The Service, in conjunction with CEC and CDFG, will approve in writing any transfer in ownership or management of the compensation lands.

n. Elk Hills Power will require OEHI to set aside additional lands in the Occidental of Elk Hills, Inc. Conservation Area in order to compensate, at the ratios in this Biological Opinion, for protected lands in the same Conservation Area that are permanently and temporarily impacted by the Elk Hills Power project.

o. Elk Hills Power will revegetate land that is temporarily disturbed during the construction of the access road, power plant, transmission line, and gas, water, steam, fuel, and wastewater line. The Draft Revegetation Plan attached here as an Appendix is a minimum plan, and it shall be incorporated into the BRMIMP. The Draft Revegetation Plan contains the following elements:
(1) pre-activity surveys for sites to be revegetated
(2) debris removal
(3) site preparation
(4) reseeding with indigenous shrub species
(5) documentation and monitoring
(6) evaluation of revegetation program
(7) adaptive management

p. A new pumping station will be built by the West Kern Water District near their existing facility. The BLM will write a letter to the West Kern Water District requiring that they consult with the Service concerning the impacts from the new pumping station, since it is being built to service this power plant. Compensation acreage and incidental take coverage will be provided at the Kern Water Bank under the Master Permit for this construction activity.

q. ***Elk Hills Power will provide funding and support a radio telemetry study of the Tipton kangaroo rats that are present on the Midway Substation expansion site. Elk Hills Power will develop a study protocols in conjunction with David Germano, Ph.D. Prior to ground disturbing activities at the Midway Substation expansion site, fencing will be installed, and trapping and holding of Tipton kangaroo rats will be conducted in accordance with the existing Elk Hills Power BRMIMP (Section 6.8). Elk Hills Power will provide the BLM, USFWS, and CDFG with project methodologies prior to initiation of the telemetry study. Progress of the study will be provided in a monthly compliance report as required by the BRMIMP.***

2. To implement reasonable and prudent measure number two, BLM shall ensure that Elk Hills Power complies with the following:

a. Any changes to the BRMIMP shall be reviewed and approved by the Service prior to implementing those changes.

b. Any new owners of Elk Hills Power Plant must agree in writing to the commitments made by Elk Hills Power, owners of the project at the time this permit is issued, and agree to abide by the Terms and Conditions of this permit.

c. The BLM shall ensure compliance with the Reporting Requirements below.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take on a species that might result from the proposed action. If, during the course of the action, the level of incidental take is determined to be excessive, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency or agencies must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

The following reporting requirements apply to this project:

1. The reporting requirements outlined in the BRMIMP or approved revisions shall be complied with, as well as the following additions:

a. In the case of take or suspected take of listed wildlife species not exempted in this opinion, the Sacramento Fish and Wildlife Office is to be notified within 24 hours.

b. Contact information:

(1) The Service contact for Kern County is Chief, Endangered Species Division at (916) 414-6600. The address is Sacramento Fish and Wildlife Office, 2800 Cottage Way, W-2605, Sacramento, California 95825.

(2) The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045 (24 hours) or the Fresno Region 4 Office at (559) 222-3761.

c. All relevant field survey data will be submitted to the CDFG Natural Diversity Database, and to the Service within 90 days of survey completion. Plant survey sheets for surveys shall be submitted to the Service.

2. Within 90 calendar days following the end of each Federal fiscal year, the BLM must submit to the Service a brief annual report detailing the following information: (1) pertinent information concerning the BLM and EPA's success in implementing all of the commitments in the Conservation Measures and Terms and Conditions sections of this biological opinion; (2) an explanation of failure to meet such measures, if any; (3) known project effects on federally listed species, including an estimate of the number of San Joaquin kit fox dens, giant and Tipton kangaroo rat burrows, and blunt-nosed leopard lizard burrows destroyed, a general estimate of other small mammal burrows impacted, and an estimate of acreage of listed plant habitat impacted, if any; (4) known occurrences of incidental take of listed species, if any; and (5) other pertinent information. The first report is due December 30, 2001.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases. Actions the BLM and EPA can take that are necessary to prevent a species from declining irreversibly in the foreseeable future include the following:

1. The BLM and EPA should assist the Service in the implementation of recovery plans for the listed plant and animal species addressed in this biological opinion, including the Valley Recovery Plan (Service 1998*a*). Specifically, for western Kern County including the Lokern area, these tasks include:

a. Encourage and assist local entities in developing and implementing large-area habitat conservation plans (Task 1.2.3 in the Valley Recovery Plan);

a. Conduct pesticide-related research for multiple species in the Lokern (Task 4.12);

a. Conduct systematics and genetics research on Kern mallow (Task 3.2.8);

a. Preserve 80 to 90 percent of the existing natural lands below about 500 meters (1640 feet) between Blackwell's Corner and Maricopa (Task 2.1.4);

a. Restore habitat for San Joaquin Le Conte's thrasher (*Toxostoma lecontei lecontei*)(Tasks 2.1.1, 2.1.4, 2.1.10, 2.1.12, 2.1.14, 2.2.9, 5.3.7, and 5.3.8); and

a. Prevent disturbances of the oil nest straw (*Stylocline citroleum*) metapopulation(Tasks 5.3.7, and 5.3.8).

1. The Service encourages the BLM to continue existing plant inventory, monitoring, and research pursuits in the Carrizo Natural Preserve and Lokern areas. Recent inventory and monitoring efforts have been valuable in discovering new populations and contributing to better understanding of the species' status.

1. The following measure should be taken to minimize impacts to Hoover's eriastrum: Ground disturbing activities within Hoover's eriastrum habitat should be conducted prior to germination or after seed scatter.

1. The Service encourages the BLM to work in concert with the Service and CDFG in developing protocols for hold and release of blunt-nosed leopard lizards, Tipton kangaroo rats, and giant kangaroo rats.

1. The BLM should extend the protective measures being implemented for listed species to all proposed and candidate species, unless coordination between the Service and BLM indicates that these measures are not warranted.

   The Service requests that restoration goals detailed below for mountain plover (*Charadrius montanus*) be considered. The mountain plover is proposed for listing as a threatened species. Since foraging habitat needs of the mountain plover overlap extensively with those of other listed grassland species, additional goals for the plover would primarily consist of adequate winter refugia, native ecosystem biodiversity (for prey species), minimizing disturbance of winter populations (e.g., from grading or conversion), and minimizing pesticide applications.

1. BLM and EPA should work with the Service, CEC, and the California Public Utilities Commission (CPUC) to quantify the indirect effects to listed species from supplying power to the electrical distribution system (grid). The BLM and EPA shall assist the Service with opening a dialogue with the CPUC concerning their permitting activities that allow development. The CPUC is the state agency that permits power distribution substations and transmission line upgrades. The development that occurs due to the CPUC-permitted activities often impacts listed species.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the (request or reinitiation request). As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) unanticipated impacts to California condors are observed from transmission line collision or electrocution; (4) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Please contact Susan Jones or Peter Cross (San Joaquin Valley Branch) of this office at (916) 414-6600, if you have any questions.

Sincerely,

Cay C. Goude
Acting Field Supervisor

Attachments:

	Figure 1	Elk Hills Power Project Vicinity Map
	Table 1	Special Status Species Found Within the Proposed Project Area
	Table 2	Biological Survey Results fort the Elk Hills Power Plant Facilities and Vicinity
	Table 3	Biological Survey Results for the Elk Hills Power Plant Areas Where Ground Disturbance Will Occur
	Table 4	Permanent and Temporary Surface Disturbance from the Elk Hills Power Project
	Table 5	Compensation Acre Calculation for the Elk Hills Power Plant
	Table 6	San Joaquin Kit Fox Captures From 1981 to 1996 on the Naval Petroleum Reserve Study Area, Kern County, California
	Appendix	Draft Revegetation Plan

cc: Al Wright, Acting State Director, Bureau of Land Management, Sacramento
Larry Saslaw, Bureau of Land Management, Bakersfield
Linda Spiegel, California Energy Commission, Sacramento
Dale Mitchell, California Department of Fish and Game, Fresno
Dennis Champion, Elk Hills Power Project, Tupman
Wes Rhodenhammel, Quad Knopf, Bakersfield
Katherine Poole, Adams Broadwell Joseph & Cardozo, South San Francisco
Nahid Zoueshtiagh, Prevention of Significant Deterioration Division, Air Quality, Environmental Protection Agency, San Francisco
Jerry Pearson, General Manager, West Kern Water District, Taft

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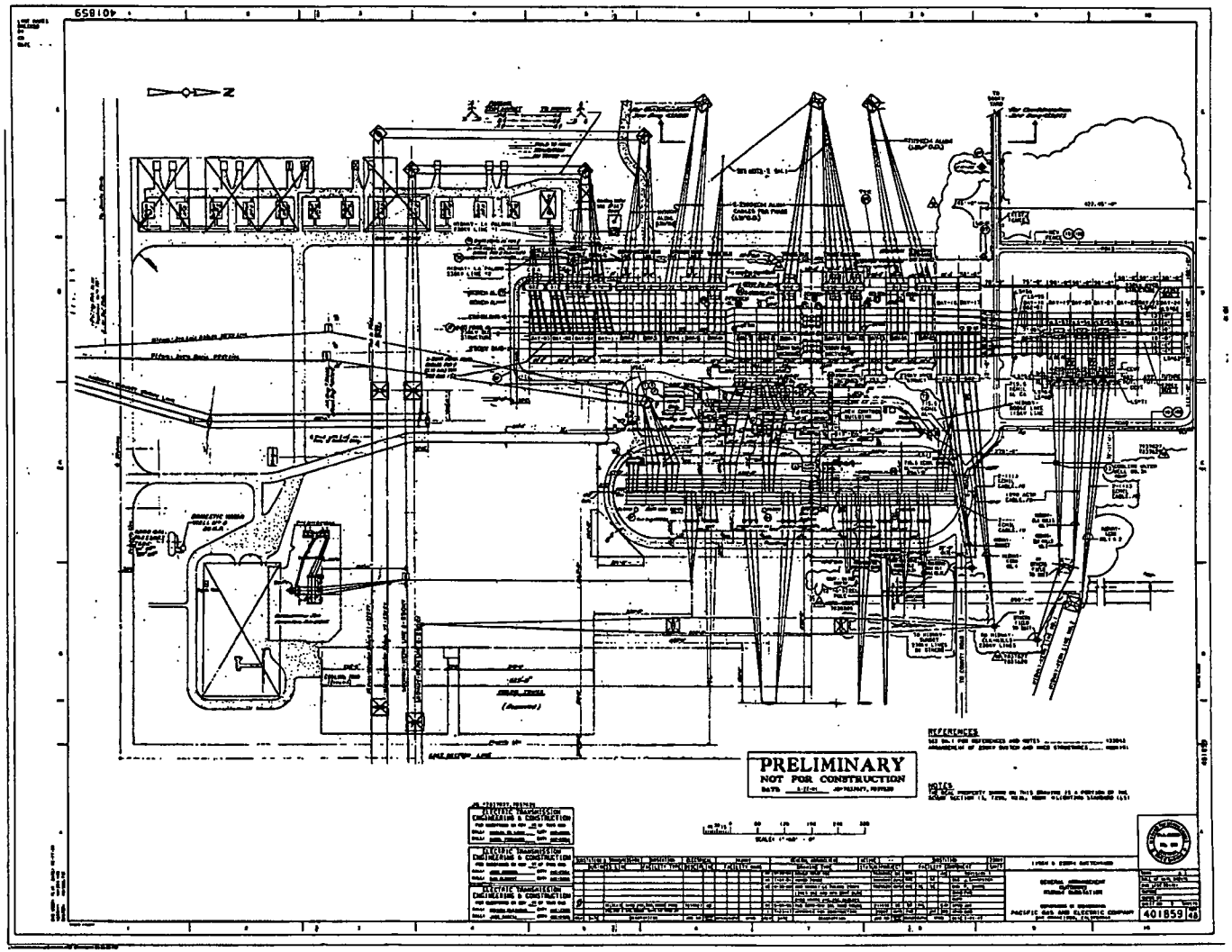

ATTACHMENT 4